

Jumping plant-lice of the New World genus *Calinda* (Hemiptera: Psylloidea: Triozidae)

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Jumping plant-lice of the New World genus *Calinda* (Hemiptera: Psylloidea: Triozidae). - The genus *Calinda* is removed from synonymy with *Trioza* and is redefined based on adult and larval characters. Its 50 constituent species, 36 of which are new, are described and illustrated. Keys are provided for males, females and fifth instar larvae. Lectotypes are designated for 3 species. The taxonomic relationships of 7 morphologically similar Argentine and Chilean species are investigated using morphometric methods. Members of the genus are associated with *Baccharis* s. l. (*Baccharis* s. str., *Neomolina* and *Pingraea*), *Senecio* and *Pentacalia* spp. (Asteraceae). The larvae are monophagous or narrowly oligophagous and induce galls in the flower heads or on the shoots. The genus is most species-rich in and along the Andes (Ecuador, Peru, Chile).

Key-words: Hemiptera - Psylloidea - Asteraceae - *Baccharis* s. l. - *Senecio* - Neotropical - Nearctic - Taxonomy.

INTRODUCTION

Baccharis (including *Neomolina* and *Pingraea*) is an asteraceous genus of woody dioecious shrubs of up to 4 m height. With some 400 to 500 species it is the largest genus within the tribe Astereae (BREMER 1994; MALAGARRIGA 1976). The bulk of the species occurs in South America with about 20 species reaching the Southern United States. *Baccharis halimifolia* was introduced into Europe and Australia, possibly as an ornamental. Several species have pest status; apart from invading pasture and park land, they are toxic to livestock. *Baccharis halimifolia*, *B. neglecta* and *B. salicifolia* cause serious economic weed problems in the Southern United States. The last one is a phreatophyte wasting valuable water in the dry Southwestern United States. On the other hand several species are beneficial to man as ornamentals, for providing food to honey bees, in controlling erosion or for use in the reclamation of copper mine waste areas, in providing commercial fragrances or an array of chemicals used for medicinal purposes, including anti-cancer drugs (BOLDT 1989).

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Baccharis s. l. hosts a variety of insects many of which are specialised to it. HOUARD (1933) lists the Central and South American gall forming species (for psylloids see table 1), and BOLDT & ROBBINS (1987, 1990, 1994), BOLDT *et al.* (1988) and BOLDT (1989) record phytophagous insects on North American taxa. Several species of the hemipterous jumping plant-lice or Psylloidea are restricted to *Baccharis* (HODKINSON & WHITE 1981; BURCKHARDT 1987a, 1988; HODKINSON 1988; BOLDT *et al.*, 1988; BOLDT & ROBBINS 1990, 1994; ARAUJO *et al.*, 1995) (cf. Tables 1, 2, 3). Most of them are gall formers on the leaves, shoots or in the flower heads. Apart from a few Psyllidae: Aphalaroidinae (*Neopelma* and *Russelliana* spp.) (table 2), the species belong to the Triozidae and, in particular, to the *Trioza hastata* (table 2) and *baccharidis* (table 3) groups (BURCKHARDT 1988). The former includes three South temperate neotropical species which are treated by BURCKHARDT (1988). The latter, in contrast, is species-rich with a long and confusing taxonomic history (see below).

The present paper reviews the taxonomy of the *Trioza baccharidis* group which is referred here to the genus *Calinda*. In particular the problem of morphological variation within and among populations is addressed. Qualitative morphological and morphometric techniques are employed and compared with host ranges. It is found that, apart from *Baccharis* s. l., also *Senecio* and *Pentacalia* spp. are utilised as hosts. The aim of the present revision is two-fold: 1. to record and describe parts of the planet's biodiversity; 2. to provide a sound taxonomic base for a group of insects of potential economic interest as control agents of weeds and as pests of plants of interest to man.

TABLE 1

Unidentified psylloid spp. inducing galls on *Baccharis* s. l. listed by HOUARD (1933). The list contains the gall number of HOUARD (1933), the plant name (nomenclature of Houard), the gall type, the provenience, and comments.

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- 1176 - *Baccharis aphylla* DC.; shoot gall; Brazil. Comment: described by TAVARES (1917) the gall shape is similar to that of *Neopelma baccharidis*.
- 1203 - *Baccharis salicifolia* Pers.; leaf gall; Argentina. Comment: this gall, which was recorded by KIEFFER & JÖRGENSEN (1910), DEL GUERCIO (1913), TAVARES (1915) and JÖRGENSEN (1917), is referable to *Trioza steinbachi*.
- 1214 - *Baccharis confertifolia* Colla (= *Pingraea salicifolia*); leaf gall; Chile. Comments: KIEFFER & HERBST (1911) described *Trioza* (?) *baccharis* based on galls and larvae from Valparaiso. Their description conforms with galls and larvae of *Trioza hastata* and *T. tergobscura* which both were collected in the area on the same host-species (MHNG data). As the type material is destroyed and the description insufficient to associate the name without doubt to either species, we follow BURCKHARDT (1988) and treat *Trioza* (?) *baccharis* as a nomen dubium.
- 1228 - *Baccharis rosmarinifolia* Hook. & Arn.; leaf gall; Chile. Comment: this gall was attributed to an aphid or psylloid (KIEFFER & HERBST 1909).
- 1232 - *Baccharis* sp.; leaf gall; Brazil. Comment: questionably referred to a psylloid (TAVARES 1917).
- 1240 - *Baccharis* sp.; flower bud galls; Brazil. Comment: RÜBSAAMEN (1907) mentions larvae which may correspond to those of *Neopelma baccharidis*.
- 1247 - *Baccharis* sp.; leaf galls; Brazil. This spherical gall described by TAVARES (1922) may be induced by *Neopelma baccharidis*.
- 1254 - ?*Baccharis* sp.; leaf galls; Brazil. Comment: it is doubtful whether this gall is produced by psylloids as has been provisionally suggested by TAVARES (1917).

TABLE 2

Psylloid species, other than *Calinda*, associated with *Baccharis* s. l. with data on distribution, host-plants and references.

Psylloid species	Distribution	Host-plants	Reference
<i>Bactericera rubra</i> (Tuthill, 1939)	Mexico, U. S. A. (Arizona, Colorado, New Mexico, Oregon)	<i>Baccharis</i> sp.	BURCKHARDT & LAUTERER 1996
<i>Trioza renarsa</i> Tuthill, 1959	Peru	? <i>Baccharis</i> sp.	TUTHILL 1959
<i>Trioza hastata</i> Burckhardt, 1988	Chile	<i>Pingraea salicifolia</i>	MHNG data
<i>Trioza tergobscura</i> Burckhardt, 1988	Argentina, Chile	<i>Pingraea salicifolia</i>	MHNG data
<i>Trioza steinbachi</i> Burckhardt, 1988	Argentina	<i>Pingraea salicifolia</i>	DEL GUERCIO 1914 MHNG data
<i>Neopelma baccharidis</i> Burckhardt, 1987	Argentina, Brazil, Chile, Paraguay	<i>Baccharis linearis</i> , <i>B. dracunculifolia</i>	BURCKHARDT 1987a; ARAUJO <i>et al.</i> 1995; MHNG data
<i>Russelliana intermedia</i> Burckhardt, 1987	Argentina, Bolivia, Chile	<i>Baccharis linearis</i> , <i>B. magellanica</i> , <i>B. mylodontis</i> , <i>B. zoellneri</i> , <i>Neomolina paniculata</i> , <i>Pingraea salicifolia</i> , <i>P. viscosa</i>	MHNG data
<i>Russelliana</i> cf. <i>solanicola</i> Tuthill, 1959	Chile	<i>Baccharis neaei</i> , <i>B. zoellneri</i>	MHNG data

TABLE 3

Checklist of *Calinda* spp. with data on distribution and host-plants.

<i>Calinda</i> species	Distribution	Host-plants
<i>aguilari</i>	Peru	<i>Baccharis</i> sp.
<i>albonigra</i>	Ecuador	unknown
<i>ambigua</i>	Argentina, Chile	<i>Baccharis x concava</i> , <i>B. linearis</i> , <i>B. mylodontis</i> , <i>B. neaei</i> , <i>B. sp.</i>
<i>antucana</i>	Chile	<i>Baccharis patagonica</i> ssp. <i>palenae</i> , <i>B. sp.</i>
<i>araucana</i>	Argentina, Chile	<i>Baccharis elaeoides</i> , <i>B. lycioides</i> , <i>B. obovata</i> ssp. <i>obovata</i> , <i>B. zoellneri</i> ssp. <i>minor</i> , ssp. <i>zoellneri</i> , <i>B. sp.</i>
<i>baccharidis</i>	Peru	<i>Baccharis lanceolata</i>
<i>beingoleai</i>	Peru	<i>Baccharis floribunda</i>
<i>boldii</i>	Chile	<i>Baccharis linearis</i> , <i>B. sp.</i> , <i>Neomolina paniculata</i>

<i>branisai</i>	Bolivia	unknown
<i>brevicauda</i>	Ecuador	unknown
<i>broomfieldi</i>	Peru	unknown
<i>chionophili</i>	Chile	<i>Senecio chionophilus</i>
<i>collaris</i>	U. S. A.	<i>Pingraea salicifolia</i>
<i>falciforceps</i>	Ecuador	unknown
<i>fumipennis</i>	U. S. A.	<i>Baccharis</i> sp.
<i>gibbosa</i>	Cuba, Colombia, Ecuador, Peru, Venezuela	<i>Baccharis floribunda</i> , <i>B.</i> sp.
<i>gladiformis</i>	Ecuador, Peru	unknown
<i>graciliforceps</i>	Mexico, U. S. A.	<i>Baccharis</i> sp.
<i>hodkinsoni</i>	Argentina	unknown
<i>hollisi</i>	Costa Rica	<i>Baccharis trinervis</i> , <i>B.</i> sp.
<i>huggerti</i>	Ecuador	unknown
<i>inca</i>	Peru	unknown
<i>jibara</i>	Ecuador	unknown
<i>longicaudata</i>	Mexico, U. S. A.	<i>Neomolina pteronioides</i>
<i>longicollis</i>	Ecuador	unknown
<i>longistylus</i>	U. S. A.	<i>Baccharis salicina</i> , <i>Pingraea salicifolia</i>
<i>magniforceps</i>	Peru	<i>Baccharis</i> sp.
<i>mendocina</i>	Argentina	<i>Pingraea salicifolia</i>
<i>microcephala</i>	Ecuador	unknown
<i>miscas</i>	Peru	unknown
<i>osorii</i>	Colombia	unknown
<i>otavalo</i>	Ecuador	unknown
<i>panamensis</i>	Costa Rica, Panama	<i>Pentacalia andicola</i>
<i>parviceps</i>	Peru	<i>Senecio rudbeckiaefolius</i>
<i>patagonica</i>	Chile	<i>Senecio patagonicus</i>
<i>pehuenche</i>	Chile	<i>Pingraea salicifolia</i>
<i>penai</i>	Chile	<i>Baccharis</i> sp.
<i>peruana</i>	Peru	<i>Baccharis</i> sp.
<i>peterseni</i>	Chile	<i>Senecio tricuspoidatus</i>
<i>plumanni</i>	Brazil	unknown
<i>proximata</i>	Mexico	unknown
<i>reversyi</i>	Bolivia	unknown
<i>salicifoliae</i>	Chile	<i>Pingraea salicifolia</i>
<i>simoni</i>	Peru	<i>Baccharis</i> sp.
<i>spatulata</i>	Ecuador	unknown
<i>testacea</i>	Chile	<i>Pingraea sphaerocephala</i>
<i>trinervis</i>	Costa Rica, Panama	<i>Baccharis trinervis</i>
<i>tuthilli</i>	Peru	unknown
<i>velardei</i>	Peru	<i>Baccharis humifusa</i>
<i>yungas</i>	Ecuador	unknown

MATERIAL AND METHODS

Type material was examined of species described by BLANCHARD (1852) (BURCKHARDT 1986, 1988) (MNHN), CRAWFORD (1910a, 1911) (USNM), TUTHILL (1959, 1964) (USNM) and BROWN & HODKINSON (1988) (USNM). Original material of KIEFFER & JÖRGENSEN (1910) and KIEFFER & HERBST (1911) was unavailable for examination and is probably destroyed (BURCKHARDT 1987a). Major sources of fresh material were recent collections from Chile by D. Hollis (BMNH) and by the authors (MHNG, NHMB); from Ecuador by L. Huggert (MZLU); from Costa Rica by P.

Hanson and D. Hollis (BMNH); and from the United States by P. E. Boldt and collaborators (USNM). Additional specimens were examined from a variety of institutions. Material is mentioned from following institutions:

BMNH	The Natural History Museum, London, UK;
FMLT	Fundación Miguel Lillo, Tucumán, Argentina;
HMNH	Hungarian Museum of Natural History, Budapest, Hungary;
IZAV	Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Aragua, Venezuela;
MHNG	Muséum d'histoire naturelle, Geneva, Switzerland;
MNHN	Muséum National d'Histoire Naturelle, Paris, France;
MNNC	Museo Nacional de Historia Natural, Santiago, Chile;
MZLU	Museum of Zoology, Lund University, Lund, Sweden;
NHMB	Naturhistorisches Museum, Basel, Switzerland;
NMHU	Naturhistorisches Museum der Humboldt Universität, Berlin, Germany;
USNM	National Museum of Natural History, Washington, D.C. (psylloid collection deposited in the USDA, Beltsville, MD), U.S.A.

Morphological terminology is as in figs 1 and 2, and follows mostly HOLLIS (1984), BROWN & HODKINSON (1988) and OSSIANNILSSON (1992). Measurements are taken as indicated in figs 1 and 2. The following abbreviations are used in the morphometric analyses, the keys and the descriptions:

a/b	m_1 cell value
AL	antenna length (including scape, pedicel and terminal setae)
ALHW	antenna length / head width ratio
c/d	cu_1 cell value
CPR	circumanal ring length
FP	female proctiger length
FPC	female proctiger / circumanal ring length ratio
FPHW	female proctiger length / head width ratio
FSP	female proctiger / subgenital plate length ratio
HW	head width
L3/L4	antennal segment 3 / segment 4 length ratio
LL	length of apical two labial segments
LLHW	length of apical two labial segments / head width ratio
SS	length of shorter terminal antennal seta
TL	metatibia length
TLHW	metatibia length / head width ratio
LS	length of longer terminal antennal seta
MP	male proctiger length
MPHW	male proctiger length / head width ratio
PL	paramere length
WL	forewing length
WLHW	forewing length / head width ratio
WLW	forewing length / width ratio
WW	forewing width

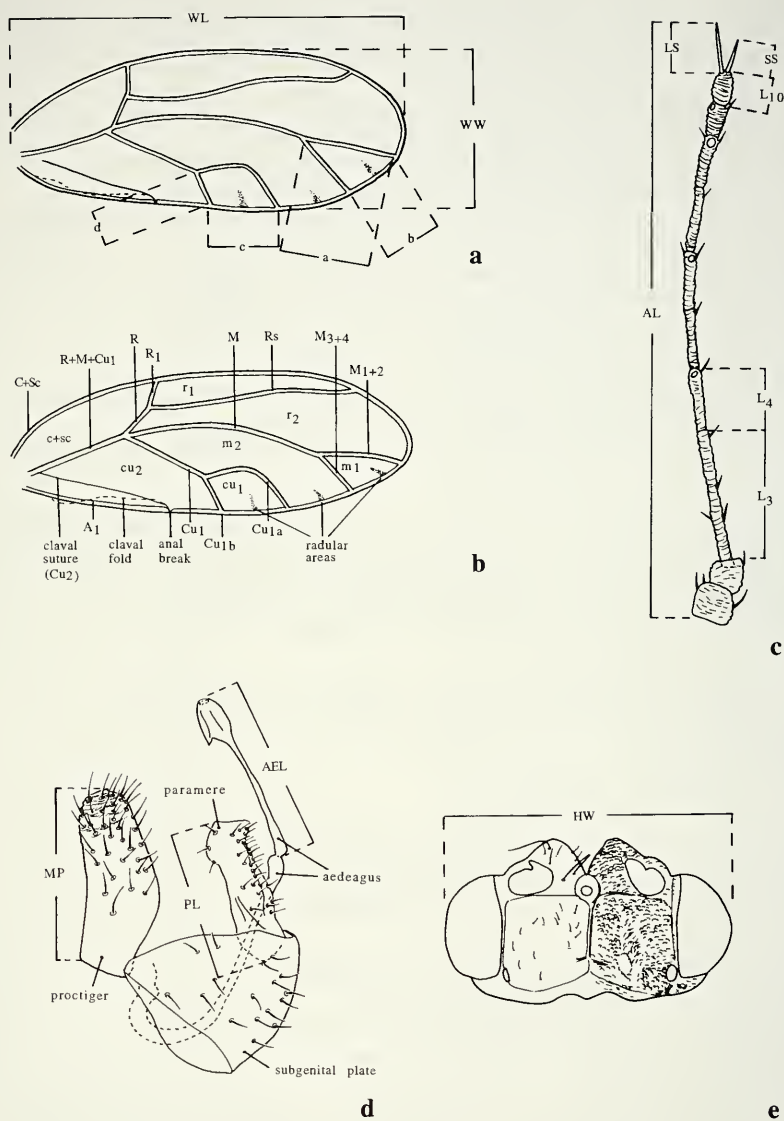


FIG. 1

Calinda spp., morphology and measurements (for explanations of abbreviations see in material and methods). a: *C. longicaudata* sp. n.; b: *C. beingoleai* (Tuthill); c, e: *C. testacea* Blanchard; d: *C. peterseni* sp. n. a: forewing showing measurement nomenclature; b: forewing showing cell nomenclature; c: antenna; d: male genitalia; e: head, dorsal view.

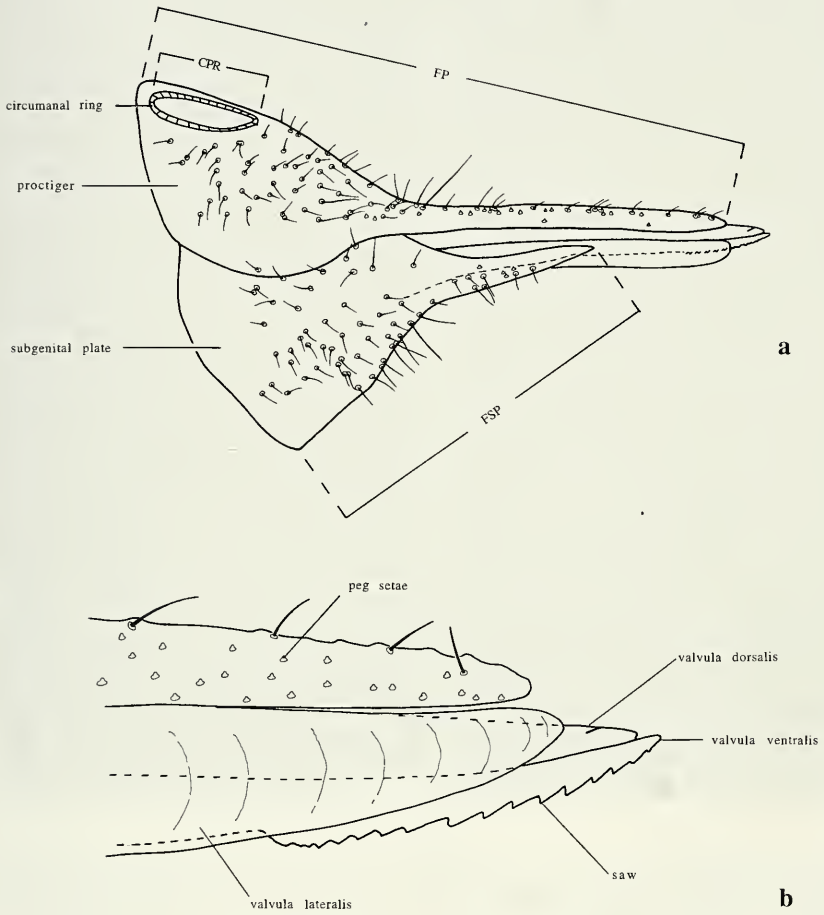


FIG. 2

Calinda araucana sp. n., morphology and measurements. a: female genitalia, in profile; b: details of valvulae.

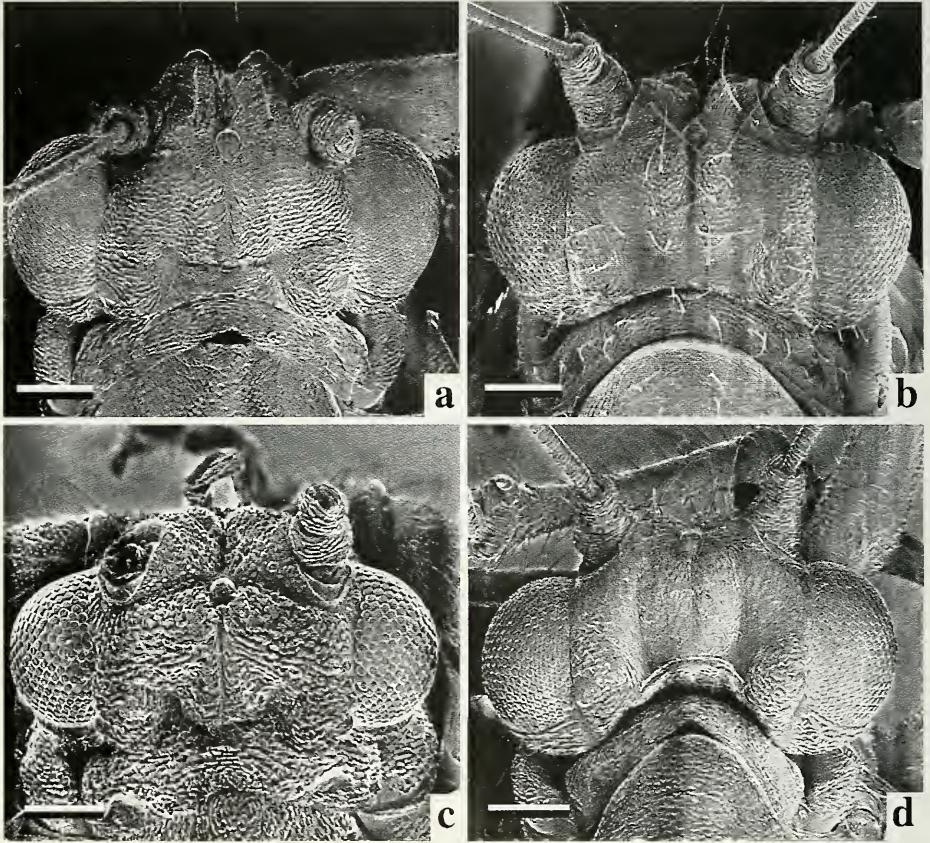


FIG. 3

Calinda spp., head, dorsal view. a: *C. longistylus* (Crawford); b: *C. panamensis* (Brown & Hodkinson); c: *C. peterseni* sp. n.; d: *C. testacea* Blanchard. Scale lines = 100 μ m.

In the material examined sections the plant names are cited as indicated on the labels. In the host-plant sections the generic concepts of HELLWIG (1993) are adopted with synonymies which were kindly suggested by F. Hellwig (pers. comm.). In cases of discrepancies the original label data are added in parentheses. Host identifications of material collected by D. Hollis and D. Burckhardt were made by F. Hellwig.

Drawings and measurements were made from slide mounted specimens. The descriptions were produced with the software DELTA (DALLWITZ *et al.* 1993). For the morphometric analyses we used the software ADE 4.0 (DOLÉDEC *et al.* 1995).

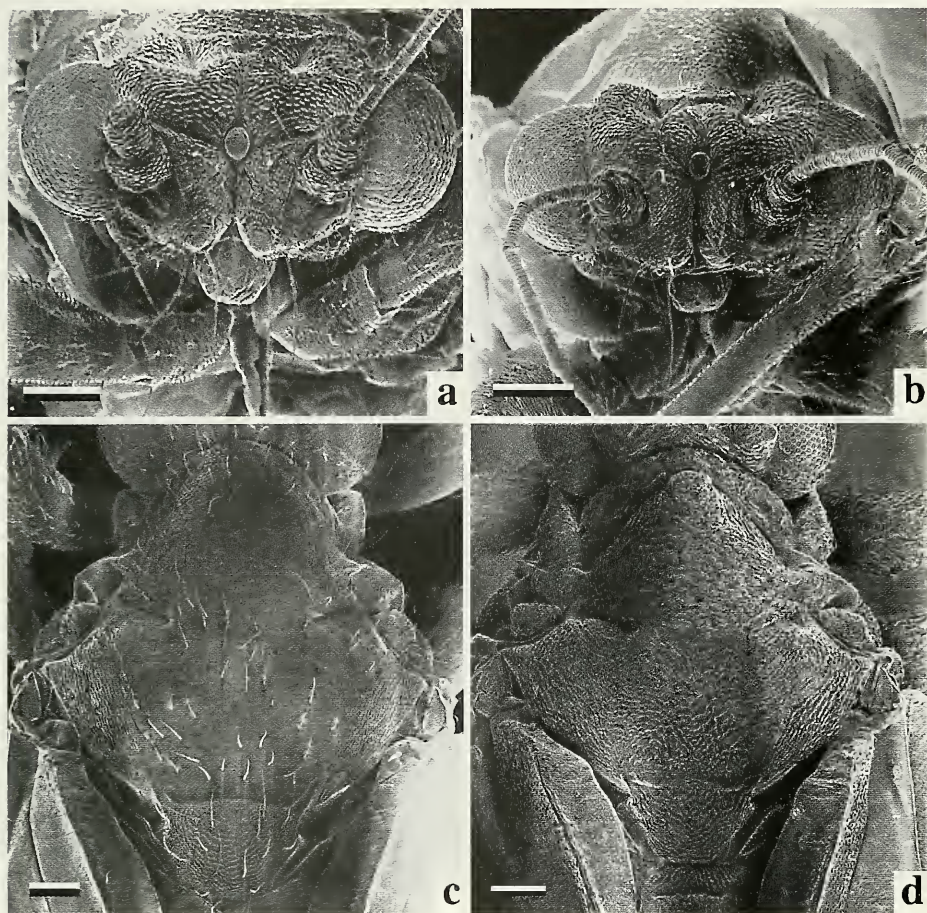


FIG. 4

Calinda spp. a-b: head, frontal view; c-d: thorax, dorsal view. a: *C. longistylus* (Crawford); b: *C. testacea* Blanchard; c: *C. panamensis* (Brown & Hodkinson); d: *C. peterseni* sp. n. Scale lines = 100 μ m.

TAXONOMIC HISTORY

The oldest publication treating neotropical psylloids is a paper by BLANCHARD (1852) describing 18 species in the genera *Psylla* (4 spp.), *Calinda* (8 spp.), *Delina* (5 spp.) and *Sphinia* (1 sp.) from Chile. Despite its fundamental character the paper was largely ignored for the following 135 years. BURCKHARDT (1986, 1987a, 1987b, 1988) revised Blanchard's collection (MNHN) in the context of taxonomical work on temperate Neotropical psylloids. BURCKHARDT (1988) designated *Calinda testacea* as type species of *Calinda* and synonymised the taxon with the large, artificial genus *Trioxa*. In addition he synonymised *C. nigromaculata* with *C. testacea*, the former

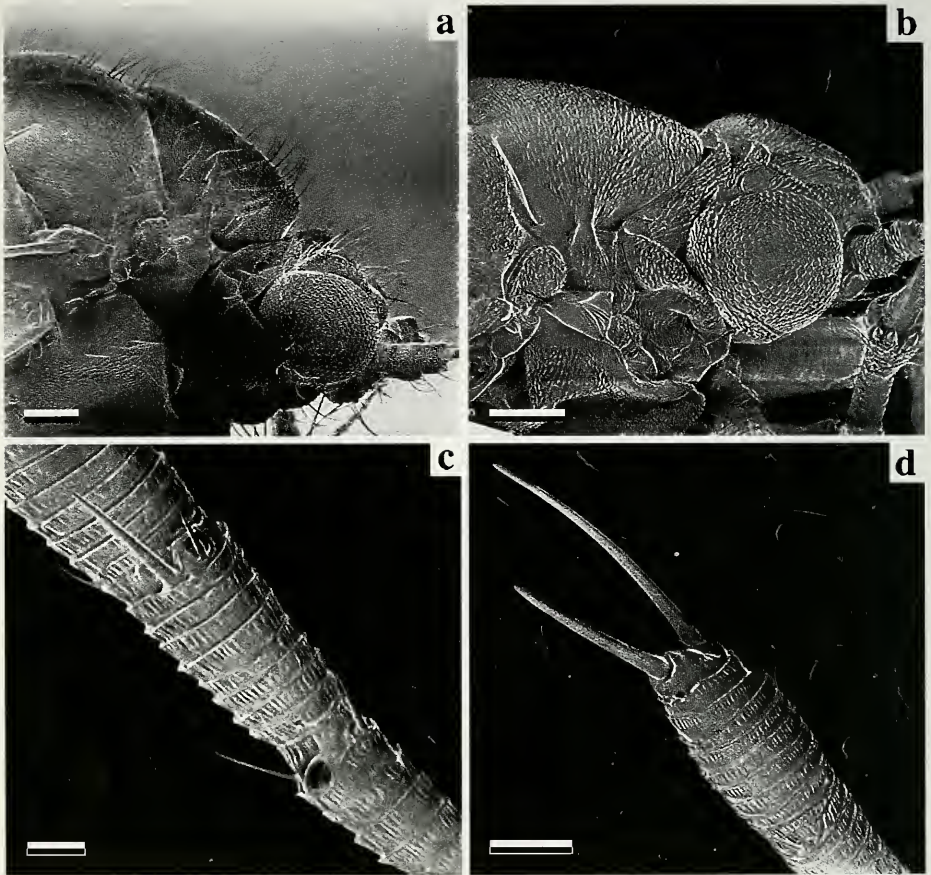


FIG. 5

Calinda spp. a-b: thorax, lateral view, scale lines = 100 μm ; c: antennal segments 8 and 9 with rhinaria, scale line = 10 μm ; d: antennal segment 10 with terminal setae, scale line = 20 μm . a: *C. panamensis* (Brown & Hodkinson); b-d: *C. testacea* Blanchard.

representing the female of the latter. The other species referred to *Calinda* by BLANCHARD (1852) belong to other groups (BURCKHARDT 1986).

Cecidotrioza mendocina was described by KIEFFER & JÖRGENSEN (1910) from material collected on *Baccharis salicifolia* (= *Pingraea salicifolia*) near Mendoza, Argentina. HODKINSON & WHITE (1981) suggested that this species may be congeneric with other *Baccharis* feeding species, and BURCKHARDT (1988) synonymised it with *Trioza testacea*.

CRAWFORD (1910a, b, 1911) described *Trioza collaris*, *longistylus* and *proximata* from the United States and Mexico. Subsequently they were recorded from many additional localities (HODKINSON & WHITE 1981; HODKINSON 1988). TUTHILL

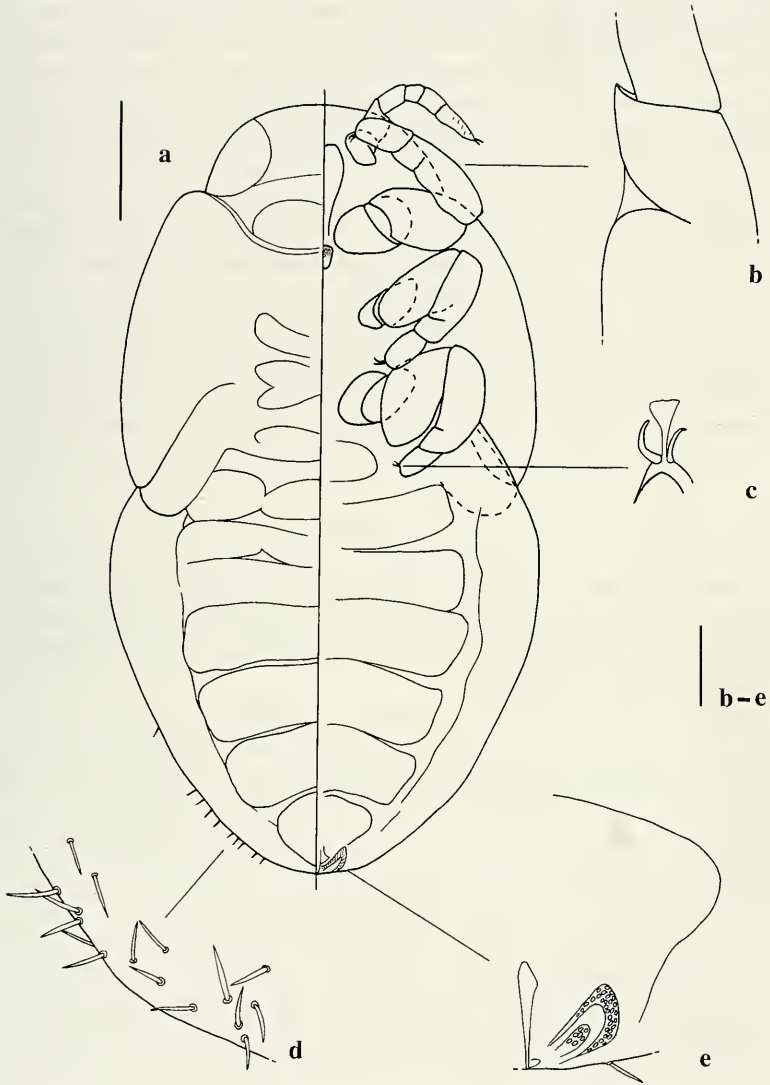


FIG. 6

C. testacea Blanchard, fifth instar larva. a: left, dorsal face, right, ventral face, scale line = 0.3 mm; b: apex of tibio-tarsus; c: tarsal arolium and claws; d: caudal abdominal setae; e: circumanal ring; scale lines b-e = 0.05 mm.

(1944) suggested that specimens of *T. longistylus* are not specifically distinct from *T. collaris* and synonymised the two. He further stated that it is impossible to separate the males of *T. collaris* and *proximata*. The illustrations of the female genitalia of *T. proximata* by CRAWFORD (1914) differ significantly from those by TUTHILL (1943), suggesting that the two authors dealt with different species. Records in the literature are, therefore, not reliable. Recently BOLDT *et al.* (1988) and BOLDT & ROBBINS (1990, 1994) recorded psylloids from several *Baccharis* spp. under the name *T. collaris*.

TUTHILL (1959, 1964) defined the *Trioza baccharidis* group and described nine species from Peru, for some of which he also indicated host-plants. BROWN & HODKINSON (1988) described one and reported another undescribed species from Panama. BURCKHARDT (1988) redefined the *T. baccharidis* group and referred South temperate neotropical material to previously described species. He concluded that members of the group have a very homogenous morphology and, with the limited material at hand at that time, it was difficult to assign specimens to known species.

QUALITATIVE TAXONOMIC CHARACTERS

As outlined above, it is difficult to identify *Calinda* species with existing literature sources as the variation of morphological characters within and among populations is largely unknown. To address this problem both a qualitative and a quantitative approach was selected.

To examine the variability of qualitative taxonomic characters, we studied the variation within populations, i. e. among specimens coming from the same locality and the same host species, e. g. specimens from Chile on *Pingraea sphaerocephala* (= *C. testacea*), on *P. salicifolia* (= *C. salicifoliae*) and on *Senecio tricuspidatus* (= *C. peterseni*) or from Mexico and the U. S. A. on *Neomolina pteronioides* (= *C. longicaudata*) and on *Pingraea salicifolia* (= *C. collaris*). Based on the comparison of these populations we found several stable characters concerning the detailed structure of the male and female genitalia as well as, though to a lesser extent, the forewing shape and colour (cf. species descriptions). The next step was to apply these character sets to all Chilean and North American material and then extend it to the entire fauna. Looking at the host plants, we found that species are either monophagous or narrowly oligophagous (Table 3), a pattern which is to be expected in psylloids.

QUANTITATIVE (MORPHOMETRIC) CHARACTERS

The morphological differences between seven Argentine and Chilean species centred around *C. testacea* are particularly small. The species complex is defined by the tubular, posteriorly weakly produced male proctiger, the long, slender, apically truncate paramere with many thick spines on the inner face, and the female proctiger

with a long apical process bearing irregularly spaced peg setae. To confirm the distinctness of these species and to find additional characters to separate them, we performed two types of morphometric analyses, as this has been done successfully in other groups of insects (FOOTTIT 1992; GARRISON 1992). The following species are treated: *C. ambigua* ($\delta = 18$, $\text{♀} = 14$), *C. antucana* ($\delta = 3$, $\text{♀} = 4$), *C. araucana* ($\delta = 15$, $\text{♀} = 14$), *C. boldti* ($\delta = 4$, $\text{♀} = 4$), *C. mendocina* ($\delta = 4$, $\text{♀} = 3$), *C. pehuenche* ($\delta = 12$, $\text{♀} = 10$), and *C. testacea* ($\delta = 15$, $\text{♀} = 12$), totalling 71 δ and 61 ♀ . Due to insufficient larval material only adult characters were taken into consideration. Males and female were treated separately.

The characters (= variables) chosen for the analysis (18 for δ , 19 for ♀) are detailed in the "Material and methods" section, in figs 1 and 2, and in appendices 1 and 2. In some specimens not all structures were measurable (e. g. broken antennae). To include all specimens, missing data were calculated from a correlation matrix with a linear regression. To avoid weighting data *a priori*, only gross values were used (JACKSON & SOMMERS 1991; YOCOZ 1993) rather than fractions. With a correlation matrix highly correlated variables were eliminated which left 10 characters for δ and 12 for ♀ .

Two types of multivariate analyses were performed: Principal Component Analysis (PCA) and Discriminant Function Analysis (DFA). The first analysis does not assume *a priori* groupings of the taxonomic units but concentrates on the relation between the variables and the individual (FOOTTIT & SORESENSEN 1992). In contrast the DFA presumes an *a priori* grouping and calculates the best separation between the taxonomic units.

ANALYSES OF MALES

From the original 18 characters, 10 were retained for the analyses: *HW*, *WL*, *WW*, *a*, *b*, *c*, *d*, *MP*, *PL* and *AEL*.

The first analysis is a PCA for centred data (fig. 7). With three axis (eigenvectors) (F1, F2, F3), most of the variation can be explained (fig. 7b, d) (ATCHLEY *et al.* 1976; CRISCI & LOPEZ 1983; FOOTTIT & SORESENSEN 1992). In our analysis 63% of the variation is in F1, and most of this corresponds to size. *C. araucana* is well-separated from the other species with the exception of *C. ambigua* which includes small and large-sized individuals. Two variables are not associated with size (*AEL* and *PL*) (fig. 7c, e); they show on F2 (15 % variation); F2 separates *C. ambigua* into two groups.

The PCA for doubly centred data (fig. 8) eliminates mostly the size effect. In our example it resembles the PCA for centred data but groups *C. ambigua* together (fig. 8b). Excluding *C. ambigua*, *C. antucana* and *C. araucana* are well-separated but the other species overlap on F1 and F2 (48% variation) (variables *AEL*, *MP*, *a*, *b*, *c*, *d*). On F2 (14 % variation) and F3 (11 % variation) *C. antucana* and *C. boldti* are separated by the variables *b*, *c*, *d* and *MP* (fig. 8d, e).

In the DFA (fig. 9) the species are well-separated on F1 (33 % variation) (fig. 9b) by the variables *a*, *c*, *AEL* and *WL*. On F2 (31 % variation) and F3 (18 %

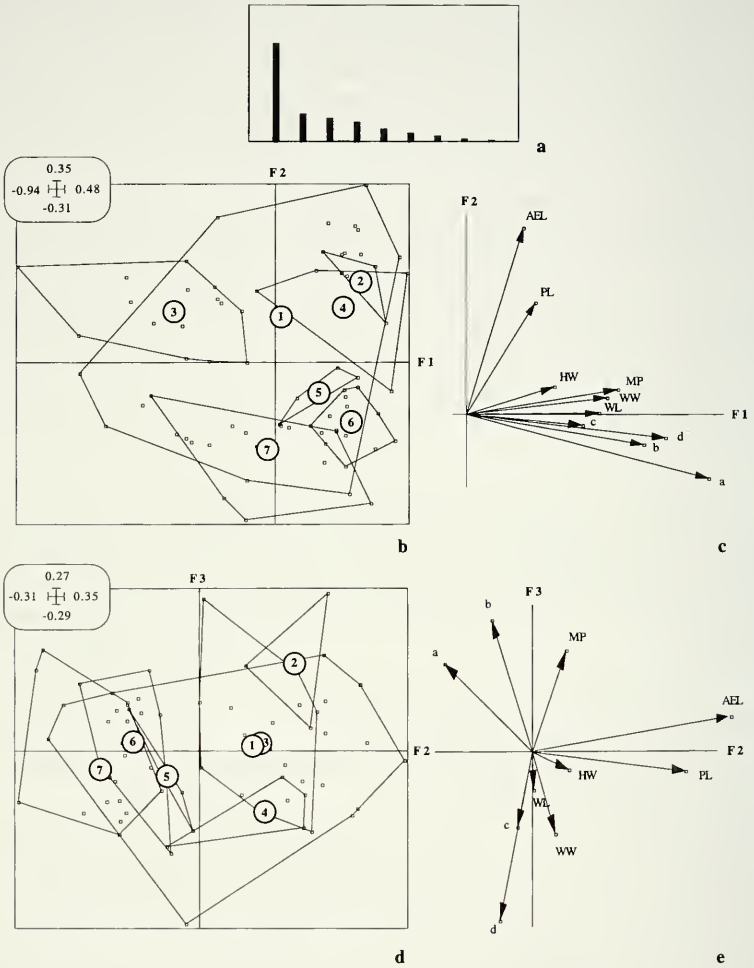


FIG. 7

Principal Component Analysis (PCA) for centred data of males. a: eigenvalues; b, d: plots of 7 species projected onto F1/F2 and F2/F3 axes; c, e: variables (for abbreviations see material and methods); b, c: first (F1) and second (F2) function axes; d, e: second (F2) and third (F3) function axes. Species codes: 1 = *C. ambigua* sp. n.; 2 = *C. antucana* sp. n.; 3 = *C. araucana* sp. n.; 4 = *C. boldti* sp. n.; 5 = *C. mendocina* (Kieffer & Jörgensen); 6 = *C. pehuenche* sp. n.; 7 = *C. testacea* Blanchard.

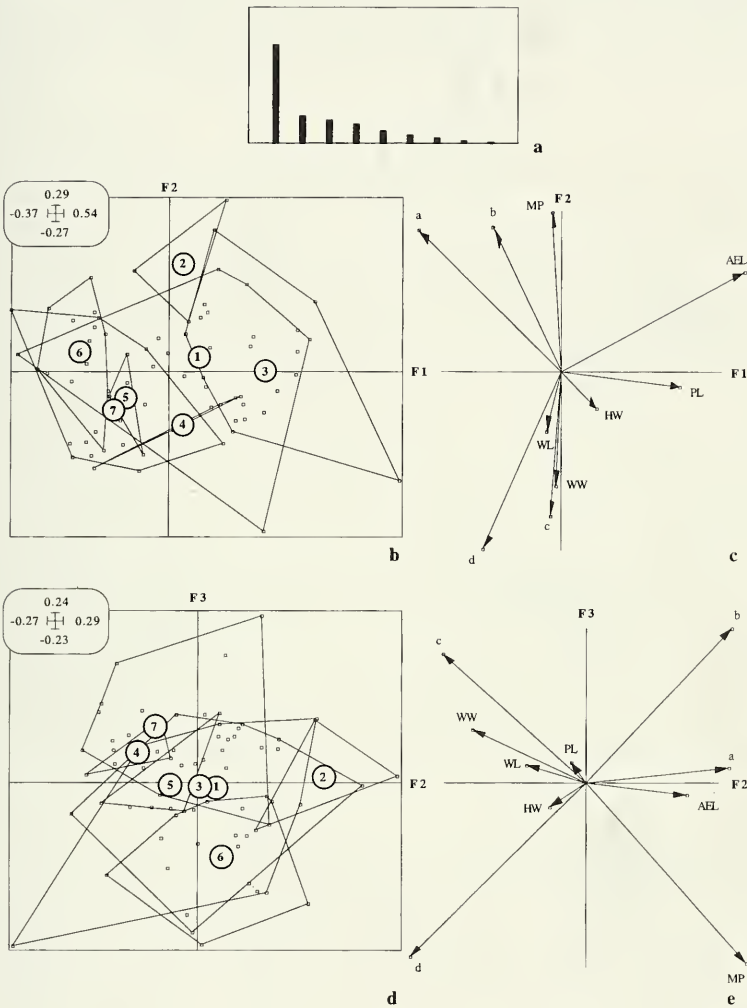


FIG. 8

Principal component analysis (PCA) for doubly centred data of males. a: eigenvalues; b, d: plots of 7 species projected onto F1/F2 and F2/F3 axes; c, e: variables (for abbreviations see material and methods); b, c: first (F1) and second (F2) function axes; d, e: second (F2) and third (F3) function axes. Species codes: 1 = *C. ambigua* sp. n.; 2 = *C. antucana* sp. n.; 3 = *C. araucana* sp. n.; 4 = *C. boldti* sp. n.; 5 = *C. mendocina* (Kieffer & Jörgensen); 6 = *C. pehuenche* sp. n.; 7 = *C. testacea* Blanchard.

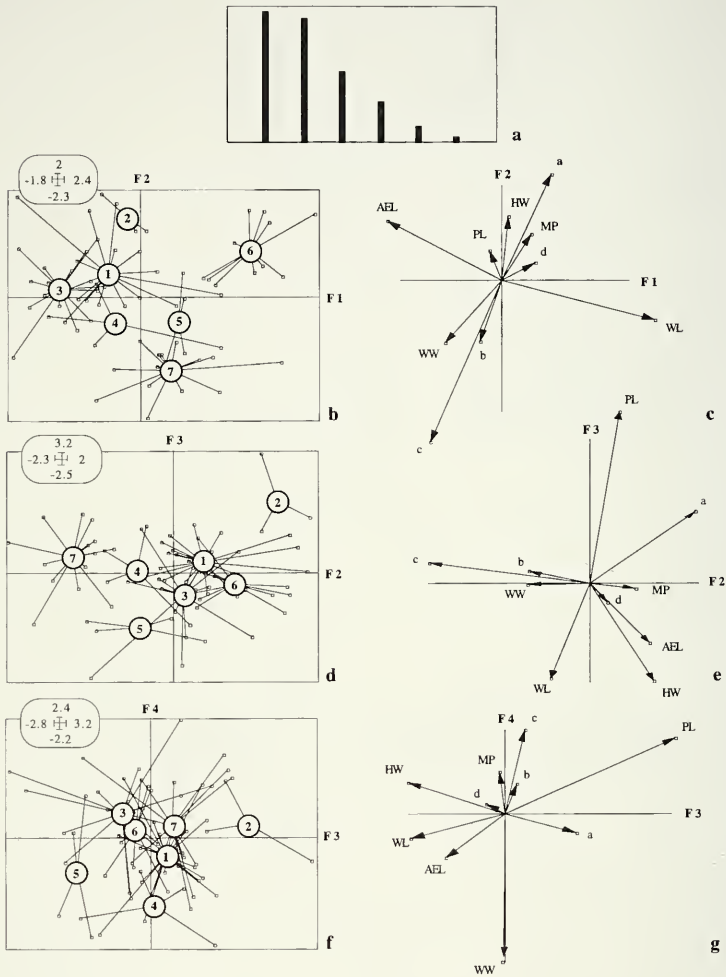


FIG. 9

Discriminant function analysis (DFA) of males. a: eigenvalues; b, d, f: plots of 7 species projected onto F1/F2, F2/F3 and F3/F4 axes; c, e, g: variables (for abbreviations see material and methods); b, c: first (F1) and second (F2) function axes; d, e: second (F2) and third (F3) function axes; f, g: third (F3) and fourth (F4) function axes. Species codes: 1 = *C. ambigua* sp. n.; 2 = *C. antucana* sp. n.; 3 = *C. araucana* sp. n.; 4 = *C. boldii* sp. n.; 5 = *C. mendocina* (Kieffer & Jörgensen); 6 = *C. pehuenche* sp. n.; 7 = *C. testacea* Blanchard.

variation) *C. antucana*, *C. mendocina* and *C. testacea* are separated by the variables *a*, *c*, *PL*, *WL* and *HW*. *C. boldti* is represented by insufficient material which makes its separation difficult (fig. 9d). On F4 (10 % variation) variable *WW* is most important and it separates *C. boldti* from the remainder of species.

ANALYSES OF FEMALES

From the 19 original variables, 12 were retained for the analyses: *HW*, *L3*, *AL*, *WL*, *WW*, *a*, *b*, *c*, *d*, *TL*, *FP* and *FSP*.

As for the males, the PCA for centred data (fig. 10) features on F1 (54 % variation) mostly size: the large-sized *C. testacea*, *C. araucana* and *C. boldti* are separated from the small-sized *C. pehuenche*, *C. mendocina* and *C. antucana*; again, *C. ambigua* has small and large individuals. F1 (fig. 10b) is characterised by all variables used in the analysis (fig. 10c). On F2 (17 % variation) *FSP*, *L3* and *a* separate *C. testacea*, *C. araucana* and *C. antucana* in one group and *C. pehuenche*, *C. mendocina* and *C. boldti* in another one.

In the PCA for doubly centred data (fig. 11), F1 (38 % variation) defines two groups, *C. pehuenche*, *C. mendocina* and *C. boldti*, and *C. testacea*, *C. araucana*, *C. ambigua* and *C. antucana*. F2 (21 % variation) separates *C. ambigua* from *C. testacea*, and *C. boldti* from *C. antucana* with the variables *AL*, *FS* and *FP*. F3 (12 % variation), finally, separates *C. pehuenche* and *C. mendocina*.

In the DFA (fig. 12) the groups from the PCA are even better defined on F1 (25 % variation) (fig. 12b) (*C. ambigua*, *C. antucana*, *C. araucana* and *C. testacea*, and *C. boldti*, *C. mendocina* and *C. pehuenche*) by *FP* and *WL*. F2 (23 % variation) separates *C. boldti* from *C. antucana* by the variables *WL* and *FS*. Finally, F3 (21 % variation) separates *C. ambigua* from the other species by the variables *HW* and *WL*.

CONCLUSIONS

The morphometric analyses confirm the groupings obtained by qualitative morphological characters and host-plant data, as well as the suitability of the chosen morphometric characters for separating the species.

As has been suggested in the literature (FOOTIT 1992; YOCOZ 1993; DOLÉDEC *et al.* 1995), our analyses confirm that in the PCA for centred data, F1 places the taxonomic units mostly according to size. The size differences found in *C. ambigua* may represent size differences found in different generations. The material was, however, insufficient to test this hypothesis.

The PCA for doubly centred data (not presuming *a priori* groupings) separates both males and females, though the separation in females (fig. 11b, d) is more clear-cut than that in the males (fig. 11b, d). The same trend is found in the DFA (with predefined groupings) (figs 9b, d, f, 12 b, d, f).

The variables with the highest discriminant power are as follows: - males, PCA for doubly centred data: F1/F2, *a* and *AEL*; F2/F3, *d* and *MP*; DFA: F1/F2, *AEL* and *WL*; F2/F3, *a* and *c*; - females, PCA for doubly centred data: F1/F2, *a* and *L3*; F2/F3, *c* and *FS*; DFA: F1/F2, *FP* and *WL*; F2/F3, *WL* and *TL*.

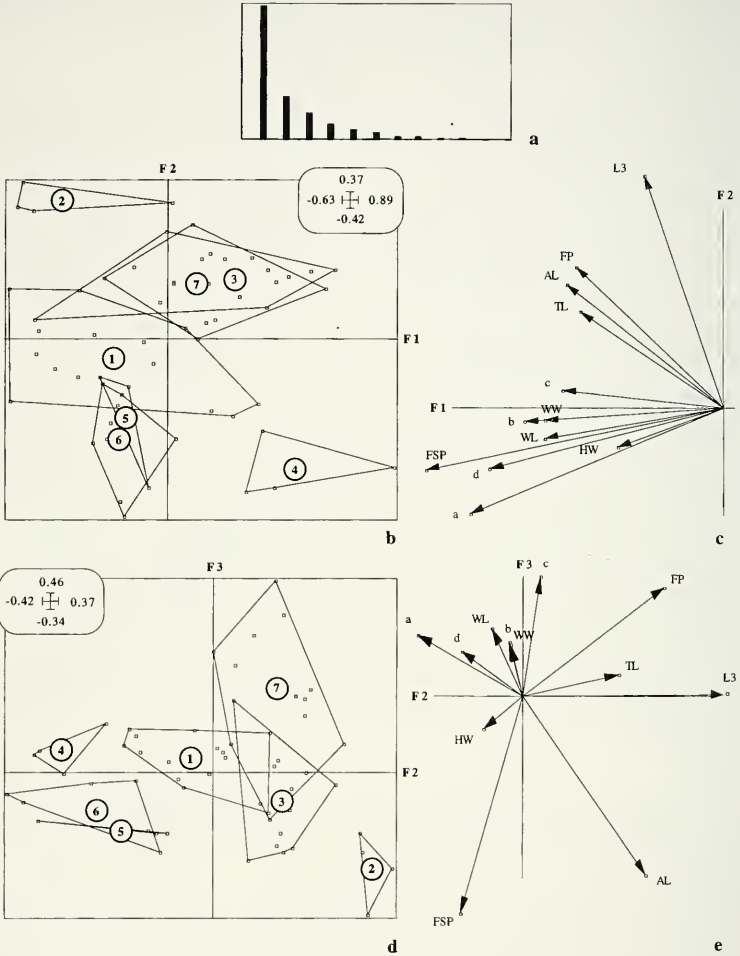


FIG. 10

Principal component analysis (PCA) for centred data of females. a: eigenvalues; b, d: plots of 7 species projected onto F1/F2 and F2/F3 axes; c, e: variables (for abbreviations see material and methods); b, c: first (F1) and second (F2) function axes; d, e: second (F2) and third (F3) function axes. Species codes: 1 = *C. ambigua* sp. n.; 2 = *C. antucana* sp. n.; 3 = *C. araucana* sp. n.; 4 = *C. boldii* sp. n.; 5 = *C. mendocina* (Kieffer & Jörgensen); 6 = *C. pehuenche* sp. n.; 7 = *C. testacea* Blanchard.

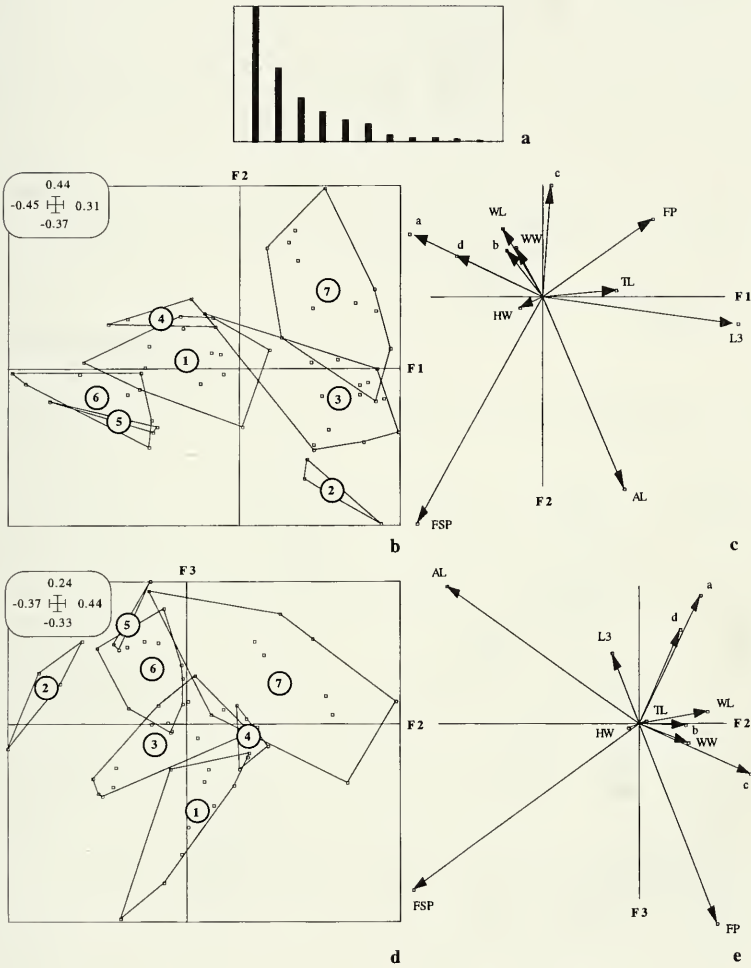


FIG. 11

Principal component analysis (PCA) for doubly centred data of females. a: eigenvalues; b, d: plots of 7 species projected onto F1/F2 and F2/F3 axes; c, e: variables (for abbreviations see material and methods); b, c: first (F1) and second (F2) function axes; d, e: second (F2) and third (F3) function axes. Species codes: 1 = *C. ambigua* sp. n.; 2 = *C. antucana* sp. n.; 3 = *C. araucana* sp. n.; 4 = *C. boldti* sp. n.; 5 = *C. mendocina* (Kieffer & Jörgensen); 6 = *C. pehuenche* sp. n.; 7 = *C. testacea* Blanchard.

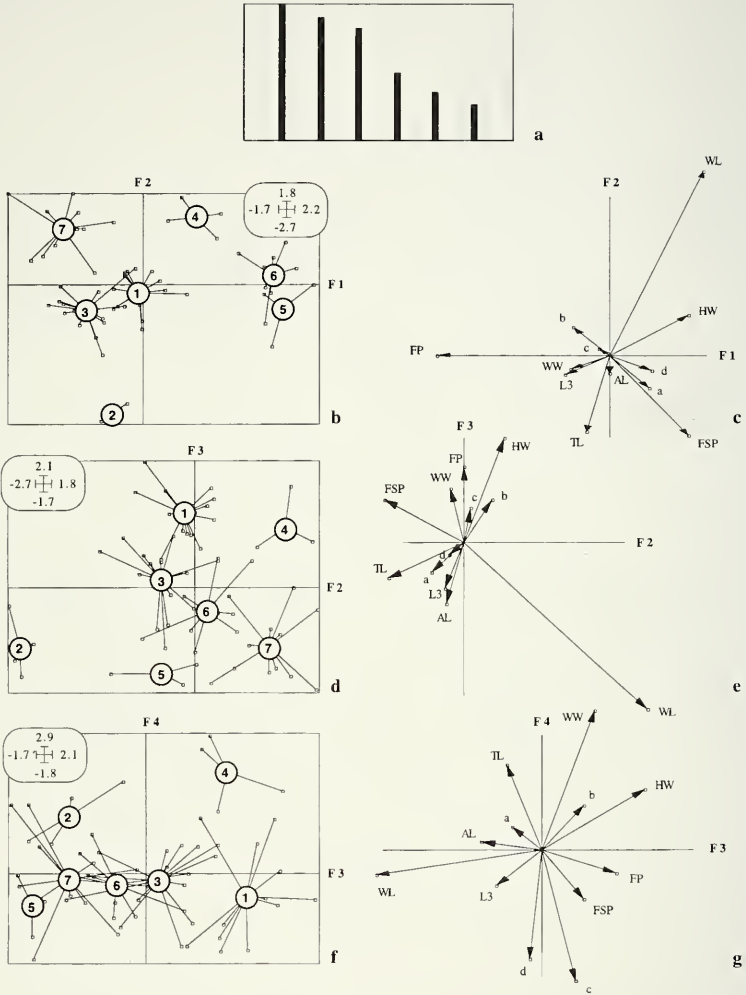


FIG. 12

Discriminant function analysis (DFA) of females. a: eigenvalues; b, d, f: plots of 7 species projected onto F1/F2, F2/F3 and F3/F4 axes; c, e, g: variables (for abbreviations see material and methods) b, c: first (F1) and second (F2) function axes; d, e: second (F2) and third (F3) function axes; f, g: third (F3) and fourth (F4) function axes. Species codes: 1 = *C. ambigua* sp. n.; 2 = *C. antucana* sp. n.; 3 = *C. araucana* sp. n.; 4 = *C. boldti* sp. n.; 5 = *C. mendocina* (Kieffer & Jörgensen); 6 = *C. pehuenche* sp. n.; 7 = *C. testacea* Blanchard.

There are two cases of species pairs which are difficult to separate with morphological characters alone: *C. pehuenche* / *C. mendocina* (figs 16i, 17a, 34e, 35a), and *C. testacea* / *C. araucana* (figs 16f, 17d, 33c, 37f), respectively. Both the PCA for doubly centred data and the DFA separate *C. pehuenche* and *C. mendocina* in the male analyses. In the female PCA for doubly centred data they are superimposed on F1/F2 and only partly separated on F2/F3, but completely separated in the DFA. The same situation we find in the females of *C. testacea* and *C. araucana*. In the male PCA for doubly centred data the species are separated on F1/F2 but are superimposed on F2/F3. They are well separated in DFA.

Unexpectedly, all analyses show clearly that the species are much better defined morphometrically in the females than in the males.

Calinda Blanchard, stat. rev.

Calinda Blanchard, 1852: 309. Type species: *Calinda testacea* Blanchard, subsequent designation by BURCKHARDT 1988: 146.

Description. Adult. Moderate to large-sized Trioziidae. Head (figs 1e, 3, 4a, b, 5a, b) about as wide as pronotum, distinctly narrower than thorax; hardly or weakly deflexed from longitudinal body axis (fig. 5a, b). Vertex subrectangular, flattened with indented foveae. Genae not or little expanded to form small tubercular processes. Setosity on vertex short or long, long setae present on genae. Eyes large, adpressed to head. Antennae 10-segmented, with each a subapical rhinarium on segments 4, 6, 8 and 9; segment 10 with an unequal pair of blunt apical setae (figs 1c, 5c, d). Clypeus hemispherical, weakly protruding in profile. Distal labial segments short. Thorax, in profile, strongly arched above (fig. 5a, b). Pronotum transverse; foremargin down-curved, laterally curved backwards. Mesopraescutum and mesoscutum of subequal longitudinal length in the middle, much longer than pronotum; with short or long setae dorsally (fig. 4c, d). Male proctiger (fig. 1d) without, with short or long apical process; hindmargin almost straight, weakly or strongly produced or lobed, hairy. Male subgenital plate globular and usually covered in long setae. Paramere usually simple, lamellar, straight or curved, and often with one or several strongly sclerotised apical teeth, sometimes complex; often with variably distributed fine or thick setae on the inner face. Aedeagus very long and slender; apical dilatation relatively small, sometimes with small or large tooth ventro-basally close to or in distance from shaft. Female genitalia (fig. 2a) usually long including a long spiniform process on both proctiger and subgenital plate (figs 27, 34-40), sometimes with dorsal teeth on the process of the proctiger and often with peg setae apically (figs 28-30). Sometimes shorter and pointed or truncate apically (figs 25, 30). Ventral margin of subgenital plate usually with a bend or a hump in the middle. Valvulae often very long and styliform (fig. 2b). Valvula dorsalis short, triangular or very long. Valvula ventralis often with ventral apical saw, which may or not be defined at the base. Legs robust. Metacoxa with large horn-shaped meracanthus; metatibia with 1+3 strongly

sclerotised apical spurs. Forewing long, usually transparent, widest in the middle or in the apical third (fig. 1a, b). Apex rounded or subacute. Vein R+M+Cu₁ strictly trifurcating, Rs long, straight or, more often, bent towards the foremargin in the middle, ending beyond bifurcation of vein M. Surface spinules often restricted to base of cell cu₂, but sometimes present in all cells. Radular spinules present in cells m₁, m₂ and cu₁, forming narrow stripes or broad triangles. Hindwing transparent, about three quarters forewing length.

Fifth instar larva (fig. 6). Yellowish, brown or black, surface rugous and leathery. Body elongate, weakly flattened. Antennae 6-segmented, curved backwards, segment 3 thick, segments 3 and 4 sometimes incompletely subdivided; rhinaria formula 466 or 3466. Head and thorax without or with inconspicuous setosity. Abdomen dorsally and ventrally with conspicuous segmentation, sometimes laterally and posteriorly with lanceolate setae. Abdominal apex broadly rounded or narrowed, sometimes indented or with a pair of teeth. Circumanal ring small, multicellular or absent. Legs robust, femora often thickened; tibio-tarsus indistinctly subdivided, with a strong inner tooth apically. Claws large, tarsal arolium membranous as long as or longer than claws. Wing pads elongate, relatively narrow, adpressed to body; margin sometimes with thick setae.

Comments. *Calinda* is well-defined within the Triozidae by a combination of morphological (adult and larval) and biological features. The former are detailed above, the latter consist of the development of the larvae in flowerheads of their asteraceous hosts and the gall induction. Several of these galls have been recorded in the literature (HOARD 1933; tables 1, 2). In contrast, there is only one previous larval description which can be referred to *Calinda* without doubt. It is that by RÜBSAAMEN (1899) who mentioned galls on *Senecio falklandicus* (which is certainly a misidentification) from Southern Chile (Punta Arenas) and described larvae similar to those of *C. patagonica*. The characters listed by BURCKHARDT (1988) were taken from the larval description of material from Argentina (Mendoza) by Del GUERCIO (1914) which concerns *Trioza steinbachi* and not *Calinda*.

HOLLIS (1984), MARTIN & HOLLIS (1992) and BURCKHARDT & LAUTERER (1997) pointed out that the definitions of most of the some 70 described triozid genera are poor and that their phylogenetic relationships are unknown. In the absence of a formalised generic classification based on scientific methods, it is impossible to analyse the phylogenetic relationships of *Calinda*. BURCKHARDT (1988) suggested that the aedeagus shape may indicate a close relationship between species of *Calinda*, of the *Trioza berberidis* Burckhardt group and of some Triozidae from New Zealand. In addition, BURCKHARDT (1988) noted a general resemblance between members of *Calinda* and of the *Trioza hastata* group, which develop also on *Baccharis* s. l. (MHNG data). HODKINSON (1989) mentioned similar possible relationships. The larvae of New Zealand species (FERRIS & KLYVER 1932; TUTHILL 1952; MARTIN & MALUMPHY 1995) differ from those of *Calinda* in their flattened body form, in the ventrally positioned anus, in the small claws and tarsal arolia and in the presence of sectasetae. These differences are considered to be important suggesting that there are

no close phylogenetic links between species from temperate South America and New Zealand. The larval morphology of *Calinda* is highly specialised and well adapted to life in flowerheads, in contrast to species of the *Trioza hastata* group which develop in leaf roll galls. Both groups have a posteriorly (in contrast to a ventrally) positioned anus, a multicellular circumanal ring (reduced in some *Calinda* spp.), back-curved 6-segmented antennae, an elongate body form, a sclerotised inner tooth on the tibio-tarsal apex, large claws and tarsal arolia, and relatively narrow wing pads. These characters are also shared by members of *Kuwayama* and *Levidea* developing on the asteraceous genus *Flourensia*. These characters are interpreted here as synapomorphies of a group of predominantly temperate and subantarctic neotropical, gall-forming Triozidae including *Calinda*, *Kuwayama*, *Levidea*, and the *Trioza hastata* group. Recently collected larval material (MHNG data) suggests that the *Trioza berberidis* group, as defined by BURCKHARDT (1988), is artificial. *Trioza miltosoma* (Blanchard), *Trioza fissa* Burckhardt, *Trioza dendroseridis* Burckhardt and *Trioza striacauda* Burckhardt have dorso-ventrally strongly flattened larvae bearing lateral sectasetae and a ventral anus. The remainder forms a probably monophyletic group whose larvae have 9-segmented straight antennae and a large, unicellular circumanal ring. We conclude that there is no close relationship between these species and the *Calinda/Kuwayama* complex.

KEY TO MALES

- 1 Proctiger bearing tubular process which is more than 1.5 times as long as its basal width (figs 13, 14a). 2
- Proctiger without tubular process or with short process which is not longer than its basal width (figs 14b-i, 15-17, 18a-f). 11
- 2 Paramere massive with transverse sclerotized subapical ridge on the inner face. 3
- Paramere slender, lacking transverse subapical ridge on the inner face. 5
- 3 Paramere lamellar (fig. 21a). *C. broomfieldi*
- Paramere complex. 4
- 4 Paramere, in profile, irregularly triangular (fig. 21b). *C. magniforceps*
- Paramere, in profile, indistinctly T-shaped (fig. 21c). *C. peruana*
- 5 Paramere, in profile, bottle-shaped, strongly narrowed in apical half (fig. 21d). *C. osorii*
- Paramere not strongly narrowed in apical half. 6
- 6 Paramere, in profile, straight. 7
- Paramere, in profile, weakly curved or angular. 9
- 7 Inner face of paramere covered in thick spines (fig. 21e). *C. salicifoliae*
- Inner face of paramere with few thin setae. 8
- 8 Surface spinules absent from apical cells of forewing (fig. 41f). *C. baccharidis*
- Surface spinules present in apical cells of forewing (fig. 41g). . . . *C. velardei*

9	Paramere evenly curved (fig. 21h).	<i>C. proximata</i>
-	Paramere angular (fig. 21i).	10
10	Small species, WL < 3.0. Genitalia as in fig. 13i.	<i>C. tuthilli</i>
-	Large species, WL > 3.0. Genitalia as in fig. 14a.	<i>C. jibara</i>
11	Proctiger with large quadrangular posterior lobes (fig. 14b-d).	12
-	Proctiger straight or weakly produced posteriorly, but not quadrangular, at most with narrow angular lobes.	14
12	Proctiger light, contrasting with dark brown subgenital plate and paramere; genitalia as in fig. 14b.	<i>C. albonigra</i>
-	Proctiger, subgenital plate and paramere of the same colour; genital morphology different.	13
13	Paramere, in profile, almost straight, slender (fig. 21m).	<i>C. penai</i>
-	Paramere, in profile, distinctly bent, wide (fig. 21n).	<i>C. gibbosa</i>
14	Paramere, in profile, spatulate (fig. 21o).	<i>C. spatulata</i>
-	Paramere different.	15
15	Paramere broad (fig. 22a-p).	16
-	Paramere narrow (figs 23a-q, 24a-q).	29
16	At least a few surface spinules present in apical cells of forewing.	17
-	Surface spinules absent from forewing, apart from cell cu ₂ .	18
17	Forewing transparent in anterior half, yellowish in posterior half.	<i>C. huggerti</i>
-	Forewing uniformly ochreous, yellowish or colourless.	<i>C. peterseni</i>
18	Setae on mesonotum shorter than 0.05 mm, usually as long as or shorter than distance between them.	19
-	Setae on mesonotum longer than 0.08 mm, distinctly longer than distance between them.	24
19	Apical dilatation of distal segment of aedeagus without or with small ventro-basal hook (fig. 19i, k).	20
-	Apical dilatation of distal portion of aedeagus with large hook (fig. 19l).	21
20	Paramere, in profile, weakly produced along foremargin subapically (fig. 22d).	<i>C. aguilari</i>
-	Paramere, in profile, bearing distinct lobe along foremargin subapically (fig. 22e).	<i>C. inca</i>
21	Paramere strongly constricted subapically (fig. 22f).	<i>C. parviceps</i>
-	Paramere weakly constricted subapically.	22
22	WLHW > 5.5.	<i>C. hodkinsoni</i>
-	WLHW < 5.5.	23
23	Forewing relatively short and wide, WLW < 2.4; paramere as in fig. 22h.	<i>C. chionophili</i>
-	Forewing longer and narrower, WLW > 2.4.	24
24	Paramere as in fig. 22i.	<i>C. patagonica</i>
-	Paramere as in fig. 22k.	<i>C. reversyi</i>
25	Posterior margin of proctiger straight.	26
-	Posterior margin of proctiger produced; paramere different.	28

- 26 Proctiger massive (fig. 15g) *C. yungas*
 - Proctiger slender (fig. 15h, i) 27
- 27 Anterior margin of paramere, in profile, distinctly angular subapically
 (fig. 22m) *C. microcephala*
 - Anterior margin of paramere, in profile, weakly rounded subapically
 (fig. 22n) *C. otavalo*
- 28 Paramere, in profile, rounded apically (fig. 22o) *C. brevicauda*
 - Paramere, in profile, truncate apically (fig. 22p) *C. panamensis*
- 29 Paramere with large anteriorly directed hook apically 30
 - Paramere at most with small anteriorly directed point apically 32
- 30 Setae of mesonotum shorter than distance between them; forewing
 bluntly angular or pointed apically *C. trinervis*
 - Setae on mesonotum longer than distance between them; forewing
 rounded apically 31
- 31 Radular spinules forming broad triangles; paramere as in fig. 23b.
 *C. longicollis*
 - Radular spinules forming narrow stripes; paramere as in fig. 23c.
 *C. falciforceps*
- 32 Paramere truncate apically (fig. 23d-q) 33
 - Paramere narrowly rounded or pointed apically (fig. 24a-l) 40
- 33 Apical dilatation of aedeagus without hook (though sometimes with
 fold which may look like a hook in low magnification) 34
 - Apical dilatation of aedeagus with small ventro-basal hook which is
 close to shaft (magnification 400 x) 36
- 34 Paramere relatively slender in distal half, antero-apical hook as in fig. 23d, e. .
 *C. araucana*
 - Paramere relatively broad in distal half 35
- 35 Paramere with distinct postero-apical tooth (fig. 23f-i) *C. ambigua*
 - Paramere angular postero-apically but without distinct tooth (fig. 23k, l).
 *C. boldti*
- 36 Posterior margin of paramere strongly produced in basal half; inner
 surface along hind-margin densely covered in thick setae (fig. 23m, n) 37
 - Posterior margin of paramere weakly produced in basal half; thick setae
 along hind-margin sparse 38
- 37 Body colour predominantly dark brown; forewing membrane light
 brownish. Paramere as in fig. 23m. Chile *C. pehuenche*
 - Body colour predominantly yellow; forewing membrane colourless.
 Paramere as in fig. 23n. Argentina *C. mendocina*
- 38 Paramere distinctly narrowed in the middle (fig. 23o). Central America.
 *C. hollisi*
 - Paramere \pm parallel-side (fig. 23p, q). Southern South America 39
- 39 Forewing widest in the middle. Proctiger massive (fig. 17c) *C. antucana*
 - Forewing wide in apical third; membrane colourless. Proctiger slender
 (fig. 17d) *C. testacea*

40	Paramere sickle-shaped (fig. 24a-g)	41
-	Paramere different (fig. 24h-l)	47
41	Forewing transparent, colourless	42
-	Forewing uniformly yellow to ochreous or with bands along the veins.	46
42	Paramere longer than proctiger, narrow (fig. 24a)	<i>C. graciliforceps</i>
-	Paramere shorter	43
43	Forewing rounded apically as in fig. 44g	<i>C. longicaudata</i>
-	Forewing angular	44
44	Paramere slender with a narrow band of thick spines along hindmargin on the inner surface (fig. 24c)	<i>C. plaumanni</i>
-	Paramere broad with a wide band of thick spines along the hindmargin on the inner face	45
45	Proctiger, in profile, widest in basal third and narrowing to apex (fig. 17h)	<i>C. collaris</i>
-	Proctiger \pm of the same width along its length (fig. 17i)	<i>C. branisai</i>
46	Forewing with yellow or ochreous bands along the veins. Apical dilatation of aedeagus short, rounded with ventro-basal hook (fig. 20q)	<i>C. longistylus</i>
-	Forewing uniformly yellow to ochreous. Apical dilatation of aedeagus elongate without ventro-basal hook (fig. 20r)	<i>C. fumipennis</i>
47	Forewing rounded apically (fig. 45a). Genitalia as in fig. 18c	<i>C. gladiformis</i>
-	Forewing angular apically (fig. 45b-d). Genitalia different	48
48	WL > 3.0; setae on vein C+Sc longer than distance between them. Genitalia as in fig. 18d	<i>C. simoni</i>
-	WL < 3.0; setae on vein C+Sc as long as or shorter than distance between them	49
49	Paramere as in fig. 24k. Apical dilatation of aedeagus without hook (fig. 20u)	<i>C. beingoleai</i>
-	Paramere as in fig. 24l. Apical dilatation of aedeagus with distinct ventro-basal hook (fig. 20v)	<i>C. muisacas</i>

KEY TO FEMALES

1	Apex of proctiger upturned or truncate (fig. 25a, c, e)	2
-	Apex of proctiger, straight, pointed	4
2	Surface spinules present in apical cells of forewing	<i>C. velardei</i>
-	Surface spinules of forewing absent except for cell cu_2	3
3	Apex of vein M_{1+2} about equidistant between apices of veins R_s and M_{3+4} . Genitalia as in fig. 25c, d	<i>C. trinervis</i>
-	Apex of vein M_{1+2} much closer to apex of vein R_s than of M_{3+4} . Genitalia as in fig. 25e, f	<i>C. longicollis</i>
4	Genitalia globular with spiniform process on proctiger, and without or short spiniform process on subgenital plate at the base of which is a small lobe on either side (figs 26a, c, 27a)	5
-	Genitalia different	7

- 5 Subgenital plate without process (fig. 26a). *C. magniforceps*
 - Subgenital plate with process. 6
- 6 Process on subgenital plate very small (fig. 26c). *C. peruana*
 - Process on subgenital plate moderately long (fig. 27a). *C. broomfieldi*
- 7 Forewing rounded apically, Rs weakly sinuous, transparent in anterior
 half, yellowish in posterior half; surface spinules present in all cells
 along outer wing margin (fig. 42d). *C. huggerti*
 - Forewing different. 8
- 8 Valvula dorsalis short (fig. 28b). Either forewing with surface spinules
 or mesothorax with setae which are as long as or longer than distance
 between them (in *C. chionophili* slightly shorter). 9
 - Valvula dorsalis long (fig. 32d); surface spinules absent and meso-
 notum with short setae. 19
- 9 Forewing with surface spinules. 10
 - Forewing without surface spinules except for base of cell cu_2 11
- 10 Forewing (fig. 42e, f) with veins Rs almost straight, radular areas
 conspicuously brown. *C. peterseni*
 - Forewing (fig. 42m.) with vein Rs distinctly sinuous, radular areas not
 much darker than surrounding membrane. *C. patagonica*
- 11 FPHW < 1.6, $c/d \leq 1.9$ 12
 - FPHW > 1.6, $c/d > 1.9$ 16
- 12 Valvula ventralis with well-defined ventral saw. *C. chionophili*
 - Valvula ventralis without ventral saw. 13
- 13 Apex of vein M_{1+2} of forewing about equidistant from apices of veins
 Rs and M_{3+4} (fig. 43e). *C. brevicauda*
 - Apex of vein M_{1+2} of forewing distinctly closer to apex of Rs than to
 M_{3+4} (fig. 43i). 14
- 14 Apical projection of proctiger weakly curved downwards, much longer
 than subgenital plate (fig. 30a). TLHW < 1.2, WLHW < 6.1. . . . *C. falciforceps*
 - Apical projection of proctiger straight, a bit longer than subgenital plate
 (fig. 30c, e). TLHW > 1.2, WLHW > 6.1. 15
- 15 Forewing membrane colourless; WLHW < 6.25. *C. panamensis*
 - Forewing membrane with yellowish or light brownish tinge; WLHW >
 6.25. *C. spatulata*
- 16 WLHW > 6.50; TLHW > 1.4. 17
 - WLHW < 6.50; TLHW < 1.4. 18
- 17 Subgenital plate distinctly shorter than proctiger (fig. 31a). *C. otavalo*
 - Subgenital plate only a little shorter than proctiger (fig. 31c). *C. microcephala*
- 18 Apical half of cell r1 strongly narrowed (fig. 42i); WL > 3.5. . . . *C. parviceps*
 - Apical half of cell r1 weakly narrowed (fig. 42k); WL < 3.5. . . . *C. hodkinsoni*
- 19 Ventral margin of subgenital plate with large hump in the middle (fig. 32c). 20
 - Ventral margin of subgenital plate without or with small hump in the
 middle (fig. 32e). 21

- 20 Process of proctiger long. *C. penai*
 - Process of proctiger short (fig. 32c). *C. gibbosa*
 21 Apical projection of proctiger with well-defined dorsal teeth or
 indistinct tubercles. 22
 - Apical projection of proctiger without dorsal teeth or tubercles. 31
 22 Apical projection of proctiger strongly inflated (fig. 32e). *C. antucana*
 - Apical projection of proctiger not inflated. 23
 23 Apical projection of proctiger very long (fig. 33a). *C. gladiformis*
 - Apical projection of proctiger moderately long. 24
 24 Ventral saw of valvula ventralis with large teeth, well-delimited at base
 (fig. 33d). *C. araucana*
 - Ventral saw of valvula ventralis either with small teeth or gradually
 evanescent at base. 25
 25 Proctiger \pm evenly tapering to apex, dorsal margin straight or weakly
 concave; ventral margin of subgenital plate without distinct tubercle in
 the middle (fig. 33e). *C. baccharidis*
 - Proctiger with distinct apical process, dorsal margin angularly concave;
 ventral margin of subgenital plate often with distinct tubercle in the
 middle (fig. 34a, c). 26
 26 Apical process of subgenital plate relatively gradually separated from
 base; ventral margin without tubercle nor strongly produced in the
 middle (fig. 34a). *C. beingoleai*
 - Apical process of subgenital plate well-defined at base; ventral margin
 with tubercle or strongly produced in the middle (fig. 34c). 27
 27 AL > 1.2; ALHW > 2.0. Ecuador. *C. albonigra*
 - AL < 1.2; ALHW < 2.0. Argentina, Chile. 28
 28 Process of subgenital plate relatively long, ending beyond the middle of
 process of proctiger. Base of subgenital plate elongate. 29
 - Process of subgenital plate relatively short, ending \pm in the middle of
 process of proctiger. Base of subgenital plate subglobular. 30
 29 Forewing membrane colourless. Body colour yellowish, greenish. Pro-
 cess of subgenital plate only slightly over half the length of basal
 portion (fig. 34e). Argentina. *C. mendocina*
 - Forewing membrane infusate. Body colour with dark brown patches.
 Process of subgenital plate about three quarters the length of basal
 portion (fig. 35a). Chile. *C. pehuenche*
 30 Cell cu ratio of forewing > 1.7. On *Neomolina paniculata*. *C. boldti*
 - Cell cu ratio of forewing < 1.7. On *Pingraea salicifolia*. *C. salicifoliae*
 31 Forewing with yellow or ochreous bands along the veins. *C. longistylus*
 - Forewing colourless or uniformly yellow. 32
 32 Process of subgenital plate less than half as long as process of proctiger. . . 33
 - Process of subgenital plate more than half as long as process of proctiger. . . 37
 33 Forewing membrane distinctly yellowish or ochreous. Genitalia as in
 fig. 36c. Colombia. *C. osorii*
 - Forewing membrane \pm colourless. Genitalia different. Peru, Chile. 34

- 34 Apical process of subgenital plate relatively long, ending about in the middle of process of proctiger. 35
- Apical process of subgenital plate relatively short, ending distal to the middle of process of proctiger. 36
- 35 Subgenital plate with large ventral hump in the middle (fig. 36e). Peru. *C. inca*
- Subgenital plate with small ventral hump in the middle (fig. 37a). Chile. *C. ambigua*
- 36 Apical process of subgenital plate very short (fig. 37d). Peru. *C. aguilari*
- Apical process of subgenital plate relatively longer (fig. 37f). Chile. *C. testacea*
- 37 Both proctiger and subgenital plate \pm evenly tapering to apex (figs 38a, c). . . 38
- Proctiger and/or subgenital plate abruptly narrowed to form an apical process (figs 38e, 39a, c, f, 40a, c, e). 39
- 38 WL > 3.9. Peru. *C. simoni*
- WL < 3.4. Mexico, U.S.A. *C. longicaudata*
- 39 Forewing membrane brownish. Genitalia as in fig. 38e. *C. fumipennis*
- Forewing membrane transparent. Genitalia different. 40
- 40 Apical process of subgenital plate longer than base (fig. 39a). 41
- Apical process of subgenital plate shorter than base (figs 39f, 40a). 42
- 41 WLHW < 5.2. U. S. A. *C. proximata*
- WLHW > 6.4. Costa Rica. *C. hollisi*
- 42 Apical process of proctiger shorter than base. *C. collaris*
- Apical process of proctiger as long as or longer than base. 43
- 43 Apical process of subgenital plate relatively well-defined at base (fig. 40a). Mexico. *C. graciliforceps*
- Apical process of subgenital plate gradually passing into basal portion (fig. 40a, c). South America. 44
- 44 WLHW < 5.3; WLW < 2.7. Bolivia. *C. branisai*
- WLHW > 5.3; WLW > 2.7. Brazil. *C. plaumanni*

KEY TO FIFTH INSTAR LARVA

- 1 Abdomen broadly rounded apically, without marginal lanceolate setae. On *Senecio patagonicus*. *C. patagonica*
- Abdomen rounded or angular, always with marginal lanceolate setae. 2
- 2 Circumanal ring reduced. Lanceolate setae on abdominal margin short, thick. 3
- Circumanal ring developed. Lanceolate setae on abdominal margin long, fine. 6
- 3 Abdominal apex strongly narrowed with two distinct apical teeth. 4
- Abdominal margin narrowly rounded with, at most, two blunt tubercles. . . . 5
- 4 Abdominal apex with dorsal lanceolate setae. On *Pingraea sphaerocephala*. *C. testacea*
- Abdominal apex without dorsal lanceolate setae. On *Baccharis* spp. *C. araucana*

- 5 On *Baccharis* spp. *C. ambigua*
 - On *Pingraea salicifolia*. *C. salicifoliae*
 6 Abdomen with a pair of indistinct blunt tubercles apically. On *Neomolina pteronioides*. *C. longicaudata*
 - Abdomen broadly rounded apically. On *Baccharis* and *Pingraea* spp. *C. collaris* and *C. longistylus*

Calinda aguilari (Tuthill), comb. n. (Figs 14i, 19i, 22d, 37d, e, 42g)

Trioza aguilari Tuthill, 1959: 21. Holotype ♂, Peru: Ancash, Bandera Blanca, slope of Carpis, 30.xii.1958, *Baccharis* sp. (L. D. Tuthill) (USNM) (examined).

Trioza aguilaria; Hodkinson & White, 1981: 510, misspelling.

Material examined. Peru: Ancash: holotype ♂, 28 ♂ and ♀ paratypes, Bandera Blanca, slope of Carpis, 30.xii.1958, *Baccharis* sp. (L. D. Tuthill); 1 ♂, paratype, Monterrey Baños, 21.xi.1958 (L. D. Tuthill); - Huánuco: 1 ♀, paratype, near San Rafael, 2300 m, 31.xii.1958 (L. D. Tuthill); 1 ♀, near Ambo, 27.xii.1958 (L. D. Tuthill); - Lima: 2 ♂, 2 ♀ paratypes, 2 ♀ not type series, Rimac Valley, 2300 m, 19.xii.1958 (L. D. Tuthill); 1 ♀, Rimac Valley, km 115, 19.xii.1958 (L. D. Tuthill); 1 ♀, near Huaral, 7.x.1958 (L. D. Tuthill); dry and slide mounted (MHNG, USNM).

Distribution. Peru (Ancash, Huánuco, Lima). Previously known from Peru (TUTHILL 1959; HODKINSON & WHITE 1981).

Description. Adult. Head and body greenish, yellowish or ochreous. Thoracic dorsum with darker patches, dorsum of head and thorax in some females dark brown. Antennal segments 1-4 or 6 ochreous, 5 or 7-10 dark brown. Processes of female genitalia brown. Forewing transparent with light veins.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules present only in cu₂; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with very short apical process, posterior margin weakly produced. Paramere shorter than proctiger, wide, truncate apically with two sclerotised apical teeth, medial constriction weak; inner surface covered in setae laterally, basally and in apical half. Apical dilatation of distal segment of aedeagus elongate, with ventro-basal hook which is close to shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Apex of circumanal ring not extended. Ventral margin of female subgenital plate with moderately developed hump medially, apical process short. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements. ♂ (2): HW 0.50; AL -; ALHW -; L3/L4 2.00; LLHW 0.66; TLHW 1.24; WL 2.80; WLHW 5.60; WLW 2.50; a/b 1.38; c/d 1.67; MP 0.33; MPH 0.66; PL 0.27; AEL 0.25. ♀ (1): HW 0.53; AL -; ALHW -; L3/L4 1.77; LLHW 0.62; TLHW 1.11; WL 3.13; WLHW 5.90; WLW 2.50; a/b 1.53; c/d 1.72; FP 0.87; FPHW 1.62; FPC 5.44; FSP 1.81.

Larva unknown.

Host-plant. Adults were collected on *Baccharis* sp.

Comments. BURCKHARDT (1988) erroneously referred 2 ♂ from Argentina to *C. aguilaris*. The specimen from NMHU belongs to *C. hodkinsoni*; the specimen deposited in HMNH is probably destroyed (T. Vászrhelyi, pers. comm.).

***Calinda albonigra* sp. n.**

(Figs 14b, 19c, 21l, 34c, d, 41l)

Holotype ♂, Ecuador: Napo, N Papallacta, 4100 m, 14.ii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: 5 ♂, 2 ♀, same data as holotype; 1 ♀, Napo, Papallacta, 3700 m, 25.ii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Head brownish yellow with foveae and coronal suture dark brown. Antennal segments 1-5 brownish yellow, 6-10 black. Pronotum and mesopraescutum ochreous with dark brown stripes, mesoscutum black with yellowish orange stripes, mesoscutellum ochreous, metascutellum and metapseudonotum black. Abdomen dark brown with whitish intersegmental membranes. Male subgenital plate and paramere black, proctiger whitish to yellowish. Female genitalia whitish or yellowish with brown base and apical processes. Legs ochreous, femora with brown patches. Forewing yellowish with brownish yellow veins. Hindwing transparent.

Forewing subacute apically; vein Rs weakly sinuous; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, quadrate, with very short apical process. Paramere longer than proctiger, narrow, narrowly rounded apically with sclerotised, anteriorly pointed, apical tooth; medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with apical membranous projection. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with moderately developed hump in the middle. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (2): HW 0.53-0.56; AL 1.33; ALHW 2.38; L3/L4 1.44-1.78; LLHW 0.55-0.78; TLHW 1.13-1.24; WL 3.25-3.62; WLHW 6.13-6.58; WLW 1.19-1.37; a/b 1.38-1.53; c/d 1.76-1.89; MP 0.25-0.28; MPH 0.47-0.50; PL 0.30-0.36; AEL 0.16-0.25. ♀ (1): HW 0.55; AL -; ALHW -; L3/L4 1.78; LLHW 0.78; TLHW 1.24; WL 3.62; WLHW 6.58; WLW 2.64; a/b 1.53; c/d 1.89; FP 1.11; FPHW 2.02; FPC 3.96; FSP 1.34.

Larva and host-plant unknown.

***Calinda ambigua* sp. n.**

(Figs 16g, 20d, 23f-i, 37a-c, 43l)

Holotype ♂, Chile: Prov. Colchagua, La Rufina, Río Tinguiririca, 650 m, 11.i.1996, *Baccharis linearis* (D. Burckhardt) #41(1), dry mounted (MHNG).

Paratypes. Argentina: Río Negro: 1 ♀, El Bolsón, 8.ii.1961 (Topál), Nr. 261; - Salta: 2 ♂, 1 ♀, 2500 m, iii-iv.1905 (S. V. Steinbach); slide mounted (MNHG).

Chile: IV Reg.: 1 ♀, Choapa, km 272 Panamericana Norte, 17.xii.1985, *Baccharis x concava* (M. Elgueta), 96-005; 2 ♂, same data but 20.viii.1985; 1 ♀, Parque Nacional Fray Jorge, foot of hill, 18.ii.1985, *Baccharis linearis* ssp. *linearis* (D. Hollis); - V Reg.: 5 ♂, Parque Nacional La Campana, 1100 m, 11.i.1985, *Tristerix* sp. (D. Hollis); - Reg. Metropolitana: 1 ♂, 1 ♀, Maipo Valley, Motocoton, 10.i.1985, *Baccharis linearis* ssp. *linearis* (D. Hollis); 1 ♀, Parque Nacional Peñuelas, 1.vii.1966 (L. Marnefn), 96-005; - VI Reg.: 89 ♂, 65 ♀, same data as holotype: 1 ♂, Prov. Cachapoal, Termas de Cauquenes, 800 m, 10.i.1996, *Baccharis linearis* (D. Burckhardt), #40(3); - VII Reg.: 1 ♂, 1 ♀, Maule, Pellines, S Constitución, 16.xii.1976 (A. G. Gurney); 2 ♂, 2 ♀, 10 km NW Cauquenes, 14.i.1985, *Baccharis neaei* (D. Hollis); 3 ♂, 2 ♀, 24 km Cauquenes to Chanco Road, 14.i.1985, *Baccharis neaei* (D. Hollis); 2 ♂, 2 ♀, same data but Cauquenes, Pelluhue; 4 ♂, 9 ♀, Prov. Cauquenes, E Cauquenes, 400 m, 12.ii.1996, *Baccharis linearis* (D. Burckhardt), #83(2); 1 ♂, 1 ♀, same but Reserva Nacional Los Ruales, 35°49'S 72°32'W, 200-350 m, 6.i.1994, *Baccharis* sp. (D. Burckhardt), #48(5); 1 ♂, Prov. Talca, km 15 junction Vilches, 600 m, 16.i.1996, *Baccharis* sp. (D. Burckhardt), #47(1); 1 ♂, Prov. Talca, Alto Vilches, 6.x.1983 (L. E. Peña); 1 exuvia, Prov. Talca, Parque Gil de Vilches, sector Majadillas, 1350-1550 m, 13.i.1996 (D. Burckhardt), #44; 2 ♀, Prov. Talca, Parque Gil de Vilches, sector Piedras Blancas, 1350-1600 m, 12.i.1996, *Baccharis* sp. (D. Burckhardt), #43(7); - VIII Reg.: 4 ♂, 4 ♀, Prov. Bio-Bio, 10 km W Antuco, 500 m, 23.i.1996, *Baccharis linearis* (D. Burckhardt), #59(1); 4 ♂, 7 ♀, 1 exuvia, Prov. Bio-Bio, Laguna del Laja, sector Meseta del Toro, 1500 m, 20.i.1996, *Baccharis* sp. (D. Burckhardt), #55(7); 15 ♂, 3 ♀, Prov. Ñuble, km 10 on road from Cabrero to Yungay near province border, 200 m, 18.i.1996, *Baccharis linearis* (D. Burckhardt), #51(1); 2 ♂, 1 ♀, 16 km NNW Los Angeles, 17.i.1985, *Baccharis* sp. (D. Hollis); 2 ♂, 1 ♀, Prov. Ñuble, 10 km W Termas de Chillán, 1250 m, 12-13.xii.1990, *Baccharis neaei*, *Nothofagus* forest (Agosti & Burckhardt), #5b; 10 ♂, 3 ♀, Puente San Juan 1, Villa los Boldos, km 33 Concepción to Florida/Villa San Ramón Road, 9.vi.1996, *Baccharis* sp. (Garrido); 1 ♀, Culenco, Santa Juana to Nacimiento, 1.v.1996, *Baccharis* sp. (Garrido); 1 ♂, 1 ♀, San José, Santa Juana to Nacimiento, 84 km S Concepción, 12.v.1996, *Baccharis* sp. (Garrido); 1 ♂, 1 ♀, Prov. Bio-Bio, 4 km SE Los Angeles, Sector Huaqui, 5.viii.1995, *Baccharis* sp. (T. Olivares); 1 ♂, 1 ♀, 1 larva, Prov. Bio-Bio, Laguna del Laja, sector Meseta del Toro, 1500 m, 20.i.1996, *Baccharis* sp. (D. Burckhardt), #55(7); 8 ♂, 2 ♀, same data but #56(6); 1 ♂, 1 ♀, same data but Parque Nacional Laguna del Laja to Abanico, 900-1100 m, 22.i.1996, *Baccharis linearis*, #58(7); - IX Reg: 1 ♂, 1 ♀, Prov. Cautín, Parque Nacional Conguillío, sector Laguna Verde, 1000 m, 30.i.1996, *Baccharis* sp. (D. Burckhardt), #69(1); 2 ♂, 1 ♀, Prov. Malleco, 3 km N Traiguén - Victoria Road, 7.viii.1995, *Baccharis* sp. (T. Olivares); 1 ♂, 3 ♀, Prov. Malleco, Alto San José, 4 km N Traiguén, 5.viii.1995, *Baccharis* sp. (T. Olivares); - X Reg.: 1 ♀, Chiloé Island, 42 km N Castro, 9.ii.1985, *Baccharis* spp. (D. Hollis); - XII Reg.: 1 ♀, 2 exuviae, Prov. Ultima Esperanza; Monumento Natural, Cueva del Milodón, 150 m, 11.i.1991, *Baccharis mylodontis* (D. Burckhardt), #34; 1 ♂, 1 ♀, Magallanes, Punta Arenas, Parque John Fell, 14-23.iv.1982, yellow pan tray 11 (J. Petersen C.); 1 ♀, same data but 18.iii-2.iv.1982; 1 ♀, same data but 20.v-4.vi.1982; dry and slide mounted, and stored in alcohol (BMNH, MNHG, MNNC, NHMB, NMHU).

Distribution. Argentina (Río Negro, Salta), Chile (IV-X, XII Reg. and Reg. Metropolitana).

Description. Adult. Male. Head yellowish brown. Antennal segments 1-4 yellowish brown to dark brown, 5-10 black. Pronotum yellow to ochreous, mesopraescutum, mesoscutum ochreous to reddish brown, mesoscutellum brown. Abdomen brownish green to black. Genitalia yellow. Legs brownish yellow, tarsi black. Forewing transparent with brownish yellow veins and radular spinules. Hindwing transparent. Female. Head green to ochreous. Antennal segments 1-4 ochreous, 5-10

black. Pronotum ochreous, mesopraescutum ochreous with four yellowish brown longitudinal stripes, two laterally and two in the middle, mesoscutellum ochreous. Abdomen with genitalia yellow, apical process of proctiger black. Legs yellowish brown, tibiae, tarsi light brown. Forewing yellowish with yellowish brown veins and radular spinules. Hindwing transparent.

Forewing subacute apically, vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, tubular, with short apical process, hindmargin weakly produced. Paramere longer than proctiger, narrow, truncate apically with two sclerotised teeth, medial constriction weak, entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate without processes. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of subgenital plate with medially moderately developed hump; apical process long. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (17): HW 0.49-0.66; AL 0.81-1.07; ALHW 1.65-1.94; L3/L4 1.30-2.00; LLHW 0.53-0.76; TLHW 0.66-1.54; WL 2.40-3.28; WLHW 4.44-5.68; WLW 1.92-3.01; a/b 1.27-2.28; c/d 1.32-1.89; MP 0.26-0.40; MPH 0.48-0.73; PL 0.29-0.45; AEL 0.28-0.45. ♀ (14): HW 0.54-0.69; AL 0.72-1.15; ALHW 1.30-1.74; L3/L4 1.36-2.10; LLHW 0.49-0.90; TLHW 0.88-1.80; WL 2.83-3.72; WLHW 4.26-6.32; WLW 2.38-2.88; a/b 1.06-1.58; c/d 0.68-1.79; FP 0.78-1.29; FPHW 1.39-2.29; FPC 3.43-5.90; FSP 1.33-1.76.

Fifth instar larva. Light brown. Body elongate, abdomen relatively narrow and angular apically. Abdominal margin and apex with relatively short lanceolate setae. Abdominal apex with two blunt indistinct teeth. Circumanal ring absent.

Host-plants. *Baccharis mylodontis* Hellwig and *B. sp.*, adults were also collected on *B. x concava* (Ruiz & Pavón) Pers., *B. linearis* (Ruiz & Pavón) Pers. and *B. neaei* DC.

Comments. The records of *T. testacea*, *T. testacea* form a and *T. nr testacea* from Argentina and Chile (BURCKHARDT 1988) concern partially *C. ambigua*.

***Calinda antucana* sp. n.**

(Figs 17c, 20i, 23p, 32e-g, 44d)

Holotype ♂, Chile: X Reg., Province Chiloé, Parque Nacional Chiloé, Rancho Grande, Río Cypresal, 0-150 m, 8.ii.1996, *Baccharis* sp. (D. Burckhardt), #80(3), dry mounted (MHNG).

Paratypes. Chile: X Reg.: 5 ♂, 5 ♀, same data as holotype; 1 ♀, Chiloé Island, 42 km N Castro, 9.ii.1985, *Nothofagus dombeyi* (D. Hollis); 1 ♂, 2 ♀, Antuco near Puyehue, 4.ii.1985, *Baccharis patagonica* ssp. *palenae* (D. Hollis); dry and slide mounted (BMNH, MHNG, NHMB).

Distribution. Chile (X Reg.).

Description. Adult. Head and pronotum yellowish to brown, mesopraescutum, mesoscutum and mesoscutellum with dark brown stripes; mesopseudonotum yellowish. Antennal segments 1-2 yellowish with dark brown apices, 3 light yellow, 4-10 dark brown. Abdomen brown, including genitalia, brown with yellow intersegmental membranes. Legs yellowish with dark brown spots. Forewing yellowish with light brown veins.

Forewing subacute apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, tubular, with very short apical process, hindmargin moderately produced. Paramere as long as proctiger, narrow, truncate apically with two strongly sclerotised teeth, medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with small ventro-basal hook which is close to shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process inflated with conspicuous dorsal teeth; peg setae dense, present only laterally, regular spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially, apical process long. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements ♂: (2) HW 0.60-0.62; AL 1.35-1.45; ALHW 2.25-2.33; L3/L4 1.60-1.72; LLHW 0.63-0.69; TLHW 1.15-1.17; WL 2.91-3.13; WLHW 4.85-5.05; WLW 2.65-2.77; a/b 1.41-1.53; c/d 1.36- 1.70; MP 0.39; MPH 0.65-0.70; PL 0.41-0.42; AEL 0.39-0.40. ♀ (4): HW 0.59-0.63; AL 1.21-1.44; ALHW 2.01-2.29; L3/L4 1.63-1.82; LLHW 0.63-0.71; TLHW 1.15-1.24; WL 2.81-3.35; WLHW 4.68-5.47; WLW 2.45-2.54; a/b 1.37-1.46; c/d 1.36-1.65; FP 1.05-1.18; FPHW 1.75-1.90; FPC 3.81-5.04; FSP 1.25-1.38.

Larva unknown.

Host-plant. Adults were collected on *Baccharis patagonica* Hook. & Arn. ssp. *palenae* (Phil.) Hellwig.

Calinda araucana sp. n.

(Figs 2a, b, 16f, 20c, 23d, e, 33c, d, 43k)

Holotype ♂, Chile: X Reg., Prov. Valdivia, Monumento Natural Alerce Costero, near El Mirador, 25-30 km W La Unión, 950 m, 29.xii.1990, *Baccharis zoellneri* spp. *zoellneri* (Agosti & Burckhardt), #24a, dry mounted (MHNG).

Paratypes. Argentina: Jujuy: 1 ♂, Yturbe, 31.xii.1984 (L. E. Peña); - Río Negro: 1 ♀, El Bolsón, 27.x.1961 (Topál), Nr. 662; 1 ♂, 1 ♀, same data but 8.ii.1961, Nr.261; dry and slide mounted (MHNG).

Chile: VII Reg.: 1 ♂, Prov. Talca, Parque Gil de Vilches, sector Laguna El Alto, 2000-2500 m, 15.i.1996, *Baccharis* sp. (D. Burckhardt), #46(1); - IX Reg.: 6 ♂, 6 ♀, Prov. Malleco, Parque Nacional Nahuelbuta, 1300 m, 16-17.xii.1990, *Baccharis zoellneri* spp. *minor*, *Nothofagus antarctica* forest (Agosti & Burckhardt), #11; 10 ♂, 6 ♀, same data but Administración to Piedra del Aguila, 1200 m, 24-25.xi.1992, *Baccharis lycioides* (D. Burckhardt), #32(4); 2 ♂, 1 ♀, Prov. Malleco, Parque Nacional Nahuelbuta, Coimallín, 20.i.1985 (D. Hollis); 3 ♂, 2 ♀, same data but Pehuenco, 18-20.i.1985, *Baccharis* sp.; 1 ♀,

Prov. Malleco, Nahuelbuta, 2.ii.1994 (J. E. Barriga), 40357; 2 ♂, 2 ♀. Loncoche, near El Liuco, 28-29.i.1985, *Baccharis obovata* ssp. *obovata* (D. Hollis); - X Reg.: 21 ♂, 8 ♀, same data as holotype; 2 ♂, same data but 850 m, #24b; 1 ♂, Prov. Valdivia, km 17-21 Valdivia to Curiñanco Road, 200-400 m, 28-30.xii.1990, *Baccharis elaeoides* (Agosti & Burckhardt), #23; 1 ♀, Prov. Osorno, Parque Nacional Puyehue, sector Mirador Los Mallines, 700 m, 1-3.ii.1996 (D. Burckhardt), #72b; 1 ♂, 1 exuvia, Prov. Llanquihue, Junction Maullín on Puerto Montt to Pargua Road, 50 m, 4.ii.1996, *Baccharis* sp. (D. Burckhardt), #76b(4); dry and slide mounted (BMNH, MHNG, MNNC).

Distribution. Argentina (Jujuy, Río Negro), Chile (VII, IX and X Reg.).

Description. Adult. Head and mesopraescutum yellow to black, mesoscutum with black stripes. Antennal segments 1-3 yellow to dark brown, 4-10 dark brown to black. Abdomen black with yellow intersegmental membranes. Genitalia yellow, paramere yellow with black patches, proctiger light yellow. Legs yellow to yellowish brown with black patches. Forewing light yellow with light brown veins and radular spinules. Hindwing transparent.

Forewing subacute apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, tubular, with very short apical process, hindmargin produced. Paramere longer than proctiger, narrow, truncate apically, anteriorly with large, pointed tooth, posteriorly angled, medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate without processes. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with moderately developed hump. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with short, basally well-defined saw.

Measurements: ♂ (15) HW 0.48-0.56; AL 0.88-1.07; ALHW 1.66-1.94; L3/L4 1.44-2.15; LLHW 0.60-0.79; TLHW 0.98-1.95; WL 2.27-2.96; WLHW 4.37-5.48; WLW 1.60-2.96; a/b 1.07-2.44; c/d 1.37-1.92; MP 0.27-0.37; MPH 0.48-0.59; PL 0.30-0.37; AEL 0.31-0.37. ♀ (14): HW 0.49-0.67; AL 0.94-1.08; ALHW 1.71-1.98; L3/L4 1.11-2.33; LLHW 0.59-0.78; TLHW 0.59-1.11; WL 2.51-3.61; WLHW 4.78-5.39; WLW 1.87-2.74; a/b 1.23-1.62; c/d 1.23-1.89; FP 0.92-1.20; FPHW 1.72-2.14; FPC 4.12-7.67; FSP 1.08-1.91.

Fifth instar larva. Ochreous, thorax dorsally darker, depressions on abdomen brown. Body elongate, abdomen relatively narrow and angular apically. Abdominal margin with relatively short lanceolate setae, apex without dorsal lanceolate setae. Abdominal apex with two distinct teeth. Circumanal ring absent.

Host-plant. *Baccharis* sp., adults were also collected on *Baccharis elaeoides* Remy, *B. lycioides* Remy, *B. obovata* Hook. & Arn. ssp. *obovata* Hook. & Arn., *B. zoellneri* Hellwig spp. *zoellneri* and ssp. *minor* Hellwig.

Calinda baccharidis (Tuthill), comb. n. (Figs 13f, 18m, 21f, 33e, f, 41f)

Trioxa baccharidis Tuthill, 1959: 18. Holotype ♂, Peru: Lima, near Huaral, Valle de Chancay, 8.x.1958. *Baccharis lanceolata* (L. D. Tuthill) (USNM) (examined). Tuthill, 1964: 29.

Material examined. Peru: Ancash: 1 ♂, 1 ♀ paratypes, Monterrey Baños, 21-23.xi.1958 (L. D. Tuthill); - Lima: holotype ♂, 11 paratypes, near Huaral, Valle de Chancay, 8.x.1958. *Baccharis lanceolata* (L. D. Tuthill); 4 ♂, 5 ♀, Chancay 40 mi. N Lima, 29.vii.1971, shrubs near river, fertile irrigated region in arid coastal desert (P. S. & H. L. Broomfield) B.M. 1971-486; dry and slide mounted (BMNH, MHNG, USNM).

Distribution. Peru (Ancash, Cuzco, Lima) (TUTHILL 1959, 1964; HODKINSON & WHITE 1981; present data).

Description. Adult. Head, thorax and abdomen ochreous. Antennal segments 1-5 ochreous, 6-10 dark ochreous. Legs ochreous. Forewing transparent with ochreous veins.

Forewing bluntly angular apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular with apical process half as long as proctiger wide, hindmargin straight. Paramere shorter than proctiger, narrow, with strongly sclerotised forward directed tooth apically, medially slightly more slender; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate without ventro-basal tooth. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate without hump in the middle, apical process long. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with short, basally well-defined saw.

Measurements: ♂ (3): HW 0.57-0.62; AL 0.87-1.21; ALHW 1.53-1.95; L3/L4 1.73-2.00; LLHW 0.53-0.63; TLHW 0.86-1.03; WL 3.06-3.35; WLHW 5.37-5.61; WLW 2.59-2.96; a/b 1.32-1.48; c/d 1.46-1.77; MP 0.44-0.48; MPH 0.77; PL 0.37-0.39; AEL 0.23. ♀ (3): HW 0.60-0.67; AL -; ALHW -; L3/L4 1.73; LLHW 0.67-0.69; TLHW 0.87-1.02; WL 3.40-3.54; WLHW 5.22-5.67; WLW 2.71-2.84; a/b 1.35-1.46; c/d 1.37-1.65; FP 0.91-1.05; FPHW 1.52-1.57; FPC 5.02-5.25; FSP 1.10-1.26.

Larva unknown.

Host-plant. Adults were collected on *Baccharis lanceolata* Kunth.

Calinda beingoleai (Tuthill), comb. n. (Figs 1b, 18e, 20u, 24k, 34a, b, 45c)

Trioxa beingoleai Tuthill, 1959: 20. Holotype ♂, Peru: Ancash, Baños de Monterrey, 21.xi.1958. *Baccharis floribunda* (L. D. Tuthill) (USNM) (examined).

Material examined. Peru: holotype ♂, 42 paratypes, Ancash, Baños de Monterrey, 21.xi.1958. *Baccharis floribunda* (L. D. Tuthill); dry and slide mounted (MHNG, USNM).

Distribution. Peru (Ancash) (TUTHILL 1959; HODKINSON & WHITE 1981).

Description. Adult. Head and mesoscutum ochreous with reddish brown stripes. Pronotum, mesopraescutum and mesoscutellum ochreous. Antennal segments 1-4 ochreous, 5-10 dark brown. Abdomen and genitalia ochreous with brownish paramere. Legs ochreous. Forewing transparent with ochreous veins.

Forewing subacute apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, with very short apical process, hindmargin almost straight. Paramere longer than proctiger, narrow with strongly sclerotised, anteriorly directed tooth apically, slightly bent in the middle; inner surface covered in setae laterally and in apical half. Apical dilatation of distal segment of aedeagus elongate, lentic-shaped. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1): HW 0.48; AL -; ALHW -; L3/L4 2.00; LLHW 2.69; TLHW 1.27; WL 2.58; WLHW 5.38; WLW 2.84; a/b 0.98; c/d 1.55; MP 0.25; MPH 0.52; PL 0.38; AEL 0.26. ♀ (1): HW 0.49; AL -; ALHW -; L3/L4 2.07; LLHW 0.94; TLHW 1.24; WL 2.82; WLHW 5.76; WLW 2.59; a/b 1.53; c/d 1.79; FP 1.09; FPHW 2.22; FPC 6.41; FSP 1.33.

Larva unknown.

Host-plant. Adults were collected on *Baccharis floribunda* H. B. K.

Calinda boldti sp. n.

(Figs 16h, 20e, 23k, 35c-e, 43m)

Holotype ♂, Chile: IV Reg., 31 km W Ovalle, 19.ii.1985, *Baccharis* sp. (D. Hollis), dry mounted (BMNH).

Paratypes. Chile: IV Reg.: 5 ♀, Prov. Limarí, Parque Nacional Fray Jorge, 250 m. 7-9.xii.1990, *Baccharis*, mediterranean scrub (Agosti & Burckhardt), #2; 3 ♀, same data but *Neomolina paniculata*; 2 ♀, same data but *Baccharis linearis*; 7 ♀, same data but Alto de Talinay, 550 m, 6-7.xii.1990, #1b; 1 ♂, 2 ♀, same data but foot of hill, 18.ii.1985, *Baccharis linearis* ssp. *linearis* (D. Hollis); 1 ♀, Prov. Elqui, 15 km SW Viñita Baja, 29°50'S 70°50'W, 450 m, 4.xii.1993 *Baccharis* sp. (D. Burckhardt), #6; - Reg. Metropolitana: 1 ♀. Curacavi, W Santiago, 30.xi.1967 (J. Apablaza); - VII Reg.: 1 ♂, 1 ♀, Cauquenes, Pelluhue, 14.i.1985, *Baccharis* sp. (D. Hollis); - X Reg.: 3 ♂, 1 ♀, Chiloé Island, 42 km N Castro, 9.ii.1985, *Baccharis* spp. (D. Hollis); - without locality data: 1 ♀ (C. S. A.), 1868; dry and slide mounted (BMNH, MHNG, MNCC).

Distribution. Chile (IV, VII, X Reg. and Reg. Metropolitana).

Description. Adult. Head and thorax ochreous, mesopraescutum and mesoscutum with reddish brown stripes. Antennal segments 1-8, ochreous 9-10 dark brown. Abdomen ochreous with dark brown spots. Female proctiger dark brown, subgenital plate ochreous. Legs ochreous. Forewing yellowish with ochreous veins and dark brown radular spinules.

Forewing subacute apically; vein Rs abruptly bent towards forewing in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, tubular, with very short apical process, hindmargin weakly produced. Paramere longer than proctiger, narrow, truncate apically with two apical teeth, medial constriction absent; entire inner surface covered in thick setae. Apical dilatation of distal segment of aedeagus elongate without ventro-basal tooth. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ® (4): HW 0.56-0.65; AL 1.08; ALHW 1.93; L3/L4 1.64-1.91; LLHW 0.56-1.27; TLHW 0.92-1.04; WL 2.93-3.35; WLHW 5.15-5.30; WLW 2.38-2.59; a/b 1.31-1.51; c/d 1.45-2.52; MP 0.30-0.35; MPH 0.49-0.56; PL 0.37-0.41; AEL 0.24-0.40. © (2): HW 0.55-0.56; AL 0.72; ALHW 1.31; L3/L4 1.53-1.67; LLHW 0.55-0.79; TLHW 0.86-0.93; WL 2.52-2.85; WLHW 4.80-5.09; WLW 2.54-2.68; a/b 1.38-1.53; c/d 1.74-1.83; FP 0.73-0.78; FPHW 1.33-1.39; FPC 3.32-4.88; FSP 1.37-1.62.

Larva unknown.

Host-plant: Adults were collected on *Baccharis linearis* (Ruiz & Pavón) Pers. ssp. *linearis* (Ruiz & Pavón) Pers., *Neomolina paniculata* (DC.) Hellwig and *Baccharis* sp.

Calinda branisai sp. n.

(Figs 17i, 20p, 24e, 40c, d, 44k)

Holotype ♂, Bolivia: Cochabamba, Ayopaya, Morochata, 3094 m, 19.vi.1980, ex papa-sweed (O. Bacon & D. Foster), dry mounted (USNM).

Paratypes. Bolivia: 1 ♂, 1 ♀, same data as holotype, slide mounted (MHNG, USNM).

Distribution. Bolivia (Cochabamba).

Description. Adult. Head, pronotum and mesopraescutum brownish yellow with brown patches, mesoscutellum brownish yellow. Antennal segments 1-4 brownish yellow, 5-10 dark brown. Abdomen and genitalia brownish yellow. Legs brownish yellow. Forewing transparent with brown veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, with very short apical process. Paramere as long as proctiger, narrow, subacute apically, with anteriorly pointed sclerotised tooth, medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate without processes. Female proctiger longer than

four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circum-anal ring not extended distally. Ventral margin of female subgenital plate with moderately developed hump in the middle. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1): HW 0.53; AL -; ALHW -; L3/L4 0.75; LLHW -; TLHW 1.03; WL 2.52; WLHW 4.75; WLW 2.90; a/b 1.81; c/d 1.79; MP 0.31; MPH 0.58; PL 0.28; AEL 0.24. ♀ (1): HW 0.53; AL -; ALHW -; L3/L4 -; LLHW 0.66; TLHW 1.11; WL 2.81; WLHW 5.30; WLW 2.68; a/b 1.33; c/d 1.56; FP 0.68; FPHW 1.28; FPC 3.24; FSP 1.42.

Larva and host-plant unknown.

***Calinda brevicauda* sp. n.**

(Figs 16a, 19s, 22o, 29d, e, 43e)

Holotype ♂, Ecuador: Napo, above Papallacta, 4100 m, 13.iii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: 1 ♂, 3 ♀, same data as holotype; 1 ♂, Napo, Papallacta, 24.ii.1983 (L. Huggert); 1 ♂, 1 ♀, Napo, Quito - Baeza Road, 4100 m, iii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Head ochreous with vertex and coronal suture dark brown. Antennal segments 1-2 dark brown, 6-10 black. Pronotum half black and half ochreous, mesopraescutum and mesoscutum ochreous with dark brown patches, mesoscutellum ochreous, metascutellum and metapseudonotum dark brown. Legs brownish yellow with brown patches, tarsi black. Abdomen dark brown with ochreous intersegmental membrane. Forewing transparent with ochreous veins. Hindwings transparent. Genitalia black.

Forewing rounded apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, strongly produced posteriorly. Paramere shorter than proctiger, broad, truncate apically, with an anterior and a posterior apical tooth, medial constriction weak; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger shorter than four times circumanal ring length, acute apically; apical process with dorsal teeth; peg setae dense, present dorsally and laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis short, triangular. Valvula ventralis long, straight without apical saw.

Measurements: ♂ (2) HW 0.58-0.71; AL 1.66-1.75; ALHW 2.56-2.98; L3/L4 1.50-1.86; LLHW 0.71-0.93; TLHW 1.17-1.36; WL 3.18-4.16; WLHW 5.11-6.12; WLW 2.44-2.57; a/b 1.27-1.37; c/d 1.42-1.62; MP 0.43-0.56; MPH 0.74-0.79; PL

0.32-0.42; AEL 0.40-0.44. ♀ (1): HW 0.68; AL 1.73; ALHW 2.98; L3/L4 1.86; LLHW 0.69; TLHW 1.21; WL 4.16; WLHW 6.12; WLW 2.46; a/b 1.37; c/d 1.57; FP 0.88; FPHW 1.29; FPC 3.38; FSP 1.19.

Larva and host-plant unknown.

Calinda broomfieldi sp. n.

(Figs 13a, 18g, 21a, 27a, b, 41a)

Holotype ♂, Peru: Lima, Chancay, 40 mi. N Lima, 29.vii.1971, shrubs near river, fertile irrigated region in arid coastal desert (P. S & H. L. Broomfield), B.M 1971-486, dry mounted (BMNH).

Paratypes. Peru: 6 ♂, 9 ♀, same data as holotype; 1 ♀, Lima, near Huaral, 8.x.1958 (L. D. Tuthill); dry and slide mounted (BMNH, MHNG, USNM).

Distribution. Peru (Lima).

Description. Adult. Head, pronotum and mesopraescutum ochreous with dark patches. Antennal segments 1-5 ochreous, 6-10 brownish. Abdomen brownish with yellow intersegmental membranes. Genitalia ochreous. Legs ochreous with black tarsi. Forewing yellowish with yellow brownish veins. Hindwing transparent.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, strongly produced posteriorly, with apical process half as long as proctiger wide. Paramere as long as proctiger, wide, weakly rounded or truncate apically with subapical, transverse carina; medial constriction weak; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate, apex subacute. Female proctiger shorter than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with rounded hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (2): HW 0.48-0.55; AL 0.70; ALHW 1.46; L3/L4 -; LLHW 0.64-1.54; TLHW 0.96-1.08; WL 2.70-2.77; WLHW 5.04-5.63; WLW 2.70-2.83; a/b 1.39-1.59; c/d 1.71-1.85; MP 0.25-0.35; MPH 0.52-0.64; PL 0.27-0.31; AEL 0.27-0.29. ♀ (2): HW 0.56-0.58; AL -; ALHW -; L3/L4 2.00; LLHW 0.59; TLHW 0.91-0.96; WL 2.99-3.17; WLHW 5.34-5.47; WLW 2.82-2.94; a/b 1.33-1.51; c/d 0.78-1.33; FP 0.69-0.76; FPHW 1.19-1.36; FPC 4.31-4.47; FSP 1.41-1.73.

Larva and host-plant unknown.

Calinda chionophili sp. n.

(Figs 15d, 19n, 22h, 29a-c, 42l)

Holotype ♂, Chile: X Reg., Parque Nacional Puyehue, near Puyehue, Antillanca, crater rim, 3.ii.1985, *Senecio chionophilus* (D. Hollis), dry mounted (BMNH).

Paratypes. Chile: 28 ♂, 18 ♀, same data as holotype, dry and slide mounted (BMNH, MHNG).

Distribution. Chile (X Reg.).

Description. Adult. Head and antenna brownish green. Pronotum green, meso- praescutum and mesoscutum yellowish green with dark brown patches; mesoscutellum and metascutellum green. Abdomen with genitalia yellowish green. Legs green with dark brown patches. Forewing transparent with dark brown veins.

Forewing rounded apically; vein Rs weakly sinuous; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu₂; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, without apical process, hindmargin moderately produced. Paramere shorter than proctiger, wide, truncate apically, with two apical teeth, medial constriction weak, entire inner surface covered in long setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger shorter than four times circumanal ring length, pointed apically; apical process with dorsal teeth; peg setae dense, present dorsally and laterally, regularly spaced. Circumanal ring extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis short, triangular. Valvula ventralis bearing short, basally well-defined saw.

Measurements: ♂ (2): HW 0.54-0.59; AL 1.27; ALHW 2.35; L3/L4 1.36-1.58; LLHW 0.78-0.86; TLHW 1.19-1.30; WL 2.37-2.51; WLHW 4.25-4.39; WLW 4.25-4.39; a/b 1.14-1.31; c/d 1.38-1.71; MP 0.35-0.38; MPH 0.59-0.70; PL 0.32; AEL 0.35-0.37. ♀ (2): HW 0.58-0.59; AL 1.45; ALHW 2.50; L3/L4 1.29-1.36; LLHW 0.76; TLHW 1.19-1.24; WL 2.82-2.84; WLHW 4.81-4.86; WLW 2.31; a/b 1.29-1.40; c/d 1.25-1.32; FP 0.83-0.84; FPHW 1.42-1.43; FPC 3.23-3.95; FSP 1.22-1.29.

Larva unknown.

Host-plant. Adults were collected on *Senecio chionophilus*. Phil.

Calinda collaris (Crawford), comb. n. (Figs 17h, 20o, 24d, 39f, g, 44i)

Trioxa collaris Crawford, 1910a: 229. Lectotype ♀, U. S. A.: California, Claremont (C. F. Baker) (USNM) (examined), here designated. Crawford, 1910b: 347.

Material examined. Mexico: 1 ♀, Coahuila, Saltillo, 23.ix.1941 (De Long, Good, Caldwell & Plummer), dry mounted (USNM).

U. S. A.: Arizona: 3 ♂, 2 ♀, Baboqvi Mts, 16.x.1937 (Oman); 1 ♂, Santa Cruz River near Tubac, 23.x.1937 (Oman); 1 ♂, same data but Sabino Canyon, 27.x.1937; - California: Lectotype ♀, Claremont (C. F. Baker); 4 ♂, 7 ♀, Los Angeles County (Coquillet); 2 ♂, same data but Palm Canyon, 4.vi.1935 (Oman) dry mounted; 1 ♀, Riverside, 19.ix.1968 (H. D. Pierce), 576 69-23145; 1 ♂, White Water, 29.ii.1968, *Baccharis* sp. (H. D. Pierce), 165 69-23145; - Texas: 1 ♀, El Paso, 19.viii.1908 (F. C. Pratt); 5 ♂, 4 ♀, 3 larvae, Jeff Davis County, Fort Davis, Limpia Creek, 19.ix.1986, *Baccharis salicifolia* (P. E. Bolt); 3 ♂, 3 ♀, 1 larva, same data but Musquiz Creek, Highway 118, 14 mi. SE Fort Davis, 15.x.1986 (T. O. Robbins); 1 ♀, Little Aguja Canyon, Jeff Davis County, Highway 1832, 16 mi. N Fort Davis, 6.ix.1984, *Baccharis glutinosa* (T. O. Robbins); dry and slide mounted (USNM, MHNG) 7928 dry mounted.

Distribution. Mexico (Coahuila), U.S.A. (Arizona, California, Texas) (CRAWFORD 1910a, b, 1911, 1914; BOLDT & ROBBINS 1990; present data).

Description. Adult. Head and thorax ochreous. Antennal segments 1-8 brownish ochreous, 9-10 brown. Pronotum and mesopraescutum ochreous. Legs and abdomen ochreous. Genitalia ochreous with black proctiger apex. Forewing transparent with brownish veins. Hindwing transparent.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent except for base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, hindmargin weakly produced. Paramere shorter than proctiger, narrow, subacute with strongly sclerotised apical tooth; medial constriction absent; inner surface covered in thick setae forming a broad ribbon along the hindmargin. Apical dilatation of distal segment of aedeagus elongate. Female proctiger shorter than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with medially flattened hump. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (7): HW 0.56-0.65; AL 1.07-1.17; ALHW 1.80-2.00; L3/L4 1.69-1.17; LLHW 0.53-0.82; TLHW 0.57-1.05; WL 3.08-3.74; WLHW 5.25-5.95; WLW 2.23-2.84; a/b 1.42-2.27; c/d 1.57-2.43; MP 0.29-0.36; MPH 0.50-0.64; PL 0.29-0.33; AEL 0.23-0.29. ♀ (4): HW 0.59-0.71; AL -; ALHW -; L3/L4 2.00-2.42; LLHW 0.61-0.76; TLHW 0.90-1.08; WL 3.34-3.73; WLHW 5.00-5.74; WLW 2.43-2.66; a/b 1.36-1.59; c/d 1.70-2.06; FP 0.76-0.84; FPHW 1.18-1.34; FPC 4.15-4.67; FSP 0.98-1.20.

Fifth instar larva. Yellowish with abdominal apex light brownish. Body elongate, abdomen relatively broad and evenly rounded apically. Abdominal margin with long lanceolate setae, apex with very few dorsal lanceolate setae. Abdominal apex without teeth. Circumanal ring developed, small, angular.

Host-plant. Specimens were reared from flower galls on *Pingraea salicifolia* (Ruiz & Pavón) Hellwig (= *Baccharis salicifolia*, = *B. glutinosa*).

Comments. The material recorded by CRAWFORD (1914) as *T. collaris* from California: Santa Cruz, 15.viii.1885 (Koebele); Santa Clara; and Argus Mountains concerns *C. longistylus*. *T. collaris* of BOLDT & ROBBINS (1990) from *Pingraea salicifolia* is true *C. collaris*, but the material collected on *Baccharis salicina* (BOLD & ROBBINS 1994) corresponds to *C. longistylus*.

***Calinda falciforceps* sp. n.**

(Figs 16e, 20b, 23c, 30a, b, 43i)

Holotype ♂. Ecuador: Napo, Papallacta, 24.ii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: 8 ♂, 7 ♀, sama data as holotype; 3 ♂, 4 ♀, Napo, Quito - Baeza Road, 4100 m. iii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Head yellowish brown to ochreous with black stripes on the vertex. Antennal segments dark brown to black. Pronotum ochreous, mesopraescutum yellowish brown to ochreous with dark brown stripes, mesoscutum, mesoscutellum and metascutellum black. Legs brownish yellow to ochreous, femora ochreous with brown patches. Abdomen black with ochreous patches. Genitalia black. Forewing yellowish with brownish yellow veins. Hindwing transparent.

Forewing rounded apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, strongly produced posteriorly. Paramere shorter than proctiger, narrow, rounded apically, with large sclerotised, anteriorly directed apical hook, medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger shorter than four times circumanal ring length, pointed apically; apical process with dorsal teeth; peg setae dense, present dorsally and laterally, regulary spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis short, triangular. Valvula ventralis long, straight without apical saw.

Measurements: ♂ (3): HW 0.62-0.68; AL 1.71-1.86; ALHW 2.51-2.86; L3/L4 1.96-2.35; LLHW 0.63-0.69; TLHW 1.19-1.29; WL 3.17-3.80; WLHW 5.10-5.85; WLW 2.38-2.53; a/b 1.10-1.44; c/d 1.28-2.00; MP 0.40-0.44; MPH 0.65-0.66; PL 0.34-0.38; AEL 0.29-0.34. ♀ (3): HW 0.64-0.70; AL 1.52-1.83; ALHW 2.27-2.63; L3/L4 1.65-2.05; LLHW 0.57-0.83; TLHW 0.74-0.84; WL 3.78-4.18; WLHW 5.66-5.97; WLW 2.22-2.47; a/b 1.42-1.51; c/d 1.50-1.80; FP 0.98-1.01; FPHW 1.44-1.55; FPC 3.16-4.39; FSP 1.32-1.43.

Larva and host-plant unknown.

Calinda fumipennis sp. n.

(Figs 18b, 20r, 24g, 38e, f, 44m)

Holotype ♂, U. S. A.: California, San Nicolas Island, beach area from Sand Spit to Cany below Sewage Ponds, 22.vi.1978, *Baccharis* sp. (A. S. Menke, D. R. Miller & R. W. Rust), dry mounted (USNM).

Paratypes. U.S.A: California: 2 ♂, 2 ♀, same data as holotype; 2 ♂, 5 ♀, San Nicolas Island, Celery Canyon, 100 ft, 22-26.vi.1978 (A. S. Menke, D. R. Miller & R. W. Rust); 1 ♀, Santa Rosa Island, Windmill Canyon, North Fork, 50 ft, 7.vi.1978, *Baccharis* sp. (A. S. Menke, D. R. Miller & R. W. Rust); 11 ♂, 7 ♀, Alameda County, 23.vii.1919 (W. M. Giffard); 1 ♂, Kedwood Canyon, Alameda, vii.1916 (W. M. Giffard); 1 ♂, Miles Canyon, Alameda, 21.vi.1919 (W. M. Giffard); 1 ♀, same data but 15.iv.1917 (W. M. Giffard); 1 ♀, Carmel, 8.viii.1940 (D. J. & J. N. Knull); 1 ♂, 1 ♀, Honda, 24.vi.1935 (Oman); 2 ♂, San Mateo County, Honda Range, 7.v.1919; 3 ♂, 5 ♀, same data but San Mateo County, 17.v.1919; 1 ♂, Paso Robles, 29.v.1919 (W. M. Giffard); 1 ♂, 5 ♀, San Benito County, 9.viii.1940 (D. J. & J. N. Knull); 1 ♂, 1 ♀, Lampas, 8.vi.1938; 2 ♂, 5 ♀, without locality data; dry and slide mounted (USNM, MHNG).

Distribution. U. S. A. (California).

Description. Adult. Head and thorax ochreous. Antennal segments 1-8 brownish ochreous, 9-10 dark brown. Abdomen, genitalia and legs ochreous. Forewing pale yellow with ochreous veins. Hindwing transparent.

Forewing bluntly angular apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, hindmargin moderately produced. Paramere as long as proctiger, narrow, \pm evenly curved, subacute apically with strongly sclerotised tooth, medial constriction absent; inner surface covered in thick setae along hindmargin. Apical dilatation of distal segment of aedeagus elongate. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: δ (1): HW 0.59; AL 1.15; ALHW 1.95; L3/L4 2.15; LLHW 0.54; TLHW 0.97; WL 2.91; WLHW 4.93; WLW 2.91; a/b 1.66; c/d 2.12; MP 0.38; MPH 0.64; PL 0.33; AEL 0.28. f (1): HW 0.65; AL -; ALHW -; L3/L4 2.08; LLHW 0.65; TLHW 0.92; WL 3.21; WLHW 4.94; WLW 2.63; a/b 1.61; c/d 1.78; FP 0.82; FPHW 1.28; FPC 3.85; FSP 0.93.

Larva unknown.

Host-plant. Adults were collected on *Baccharis* sp.

***Calinda gibbosa* (Tuthill), comb. n.**

(Figs 14d, 19e, 21n, 32c, d, 42a, b)

Trioxa gibbosa Tuthill, 1959: 20. Holotype f . Peru: Ancash, Monterrey Baños, 21-23.xi.1958, *Baccharis floribunda* (L. D. Tuthill) (USNM) (examined).

Material examined. Colombia: 1 δ , Narino, La Cruz, 19.x.1943 (F. R. Fosberg); 2 f , Pasto (B. Guevara); 4 f , Santa Elena, 28.xii.1930 (S. & C. H. Ballón); dry and slide mounted (MHNG, USNM).

Cuba: 3 δ , 2 f , Oriente, Boquerón, ii.1979, *Baccharis* sp. (G. Morales), dry and slide mounted (BMNH, MHNG).

Ecuador: Napo: 1 f , N Papallacta, 4100 m, 14.ii.1983 (L. Huggert); 1 f , Papallacta, 3700 m, 25.ii.1983 (L. Huggert); - Pichincha: 1 f , Calderón, x.1930 (R. Benoist); 1 δ , Quito, x.1930 (R. Benoist); 2 f , Quito, ix.1962 (J. C. M. C); dry and slide mounted (MHNG, MNHN, MZLU, USNM).

Peru: Ancash: holotype δ , 10 paratypes, Baños Monterrey, 21-23.xi.1958, *Baccharis floribunda* (L. D. Tuthill); 1 δ , 1 f paratype, Bandera Blanca, 30.xii.1958 (L. D. Tuthill); - Lima: 1 paratype f , Rimac Valley, km 115, 19.xii.1958 (L. D. Tuthill); dry and slide mounted (USNM).

Distribution. Colombia, Cuba, Ecuador (Napo, Pichincha). Peru (Ancash, Lima) and possibly Venezuela (see comments) (TUTHILL 1959; HODKINSON & WHITE 1981; BURCKHARDT 1988; and present data).

Description. Adult. Male. Head and thorax ochreous, mesopraescutum and mesoscutum with dark brown stripes. Antennal segments 1-5 ochreous, 6-10 dark brown.

Abdomen ochreous with dark brown intersegmental membranes. Genitalia light brown. Legs ochreous. Forewing yellowish with brown veins. Female. Head ochreous to brownish green, pronotum ochreous, mesopraescutum green mixed with light brown patches centrally, mesoscutellum and abdomen green. Genitalia green with brown apical process. Forewing transparent with brown veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, quadrate, with very short apical process. Paramere longer than proctiger, narrow, bent in basal third, subacute and strongly sclerotised apically, medial constriction absent; inner surface covered in setae centrally and in apical half. Apical dilatation of distal segment of aedeagus elongate, incised in the middle, with membranous projection. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with large hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (4): HW 0.58-0.67; AL 1.33; ALHW 2.11; L3/L4 1.50-1.78; LLHW 0.60-1.24; TLHW 1.11-1.24; WL 3.48-4.00; WLHW 5.71-6.05; WLW 2.41-2.58; a/b 1.44-1.77; c/d 1.85-2.03; MP 0.27-0.30; MPH 0.40-0.48; PL 0.30-0.42; AEL 0.24-0.41. ♀ (2): HW 0.64-0.66; AL -; ALHW -; L3/L4 1.60-1.78; LLHW 0.69-0.71; TLHW 1.12-1.28; WL 4.00-4.10; WLHW 6.06-6.41; WLW 2.44-2.55; a/b 1.43-1.50; c/d 1.70-2.09; FP 1.06-1.08; FPHW 1.06-1.08; FPC 4.32-5.05; FSP 1.20-1.38.

Larva unknown.

Host-plant. Adults were collected on *Baccharis floribunda* H. B. K. and *Baccharis* sp.

Comments. BURCKHARDT (1988) reported the species from Peru, Ecuador, Venezuela and Chile. The record from Chile concerns *C. penai*. The material from Venezuela was not reexamined, but it is quite likely that the species occurs there.

***Calinda gladiformis* sp. n.**

(Figs 18c, 20s, 24h, 33a, b, 45a)

Holotype ♂, Ecuador: Napo, Quito - Baeza Road, 4100 m, iii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: 21 ♂, 11 ♀, same data as holotype; 2 ♀, Napo, above Papallacta, 4100 m, 13.iii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU). Peru: 1 ♂, Junín, Satipo, 19.i.1984 (L. Huggert), slide mounted (MZLU).

Material not included in type series. Ecuador: 1 adult without abdomen, Napo, Quito - Baeza Road, 4100 m, iii.1983 (L. Huggert), dry mounted (MZLU).

Distribution. Ecuador (Napo), Peru (Junín).

Description. Adult. Head yellowish brown. Antennal segments 1-4 brownish yellow, 5-10 black. Pronotum dark brown with yellow spots, mesopraescutum black with four yellow stripes, mesoscutellum yellow, metascutellum and metapseudo-

notum black. Abdomen black with white intersegmental membranes. Genitalia black. Legs yellowish brown with brown patches, tarsi black. Forewing yellowish with brownish yellow veins. Hindwing transparent.

Forewing rounded apically; vein Rs weakly bent toward foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with very short apical process, strongly produced posteriorly. Paramere longer than proctiger, narrow, bent in the middle, subacute apically with strongly sclerotised tooth, medial constriction absent, entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate anteriorly produced into long, pointed, membranous projection. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (7): HW 0.51-0.57; AL 0.84-1.04; ALHW 1.65-1.96; L3/L4 1.81-2.27; LLHW 0.40-0.84; TLHW 1.04-1.25; WL 2.45-2.80; WLHW 4.30-5.49; WLW 2.61-2.87; a/b 1.22-1.42; c/d 1.29-1.53; MP 0.21-0.27; MPH 0.38-0.53; PL 0.37-0.43; AEL 0.26-0.31. ♀ (5): HW 0.54-0.66; AL 1.00-1.12; ALHW 1.68-1.96; L3/L4 1.38-2.00; LLHW 0.68-1.14; TLHW 1.06-1.26; WL 2.94-3.24; WLHW 4.84-5.44; WLW 2.63-2.91; a/b 1.25-1.46; c/d 1.33-1.72; FP 1.43-1.54; FPHW 2.00-2.67; FPC 4.77-7.04; FSP 1.25-1.33.

Larva and host-plant unknown.

***Calinda graciliforceps* sp. n.**

(Figs 17e, 20l, 24a, 40a, b, 44f)

Trioza collaris sensu Tuthill, 1944: 158, p. p.; nec Crawford, 1910a.

Trioza longistylus sensu Caldwell, 1941: 422; nec Crawford, 1910a.

Trioza proximata sensu Caldwell, 1941: 422, p. p.; sensu Tuthill, 1945: 1, p. p.; nec Crawford, 1911.

Holotype ♂, Mexico: Hidalgo: Zimapán, 26.ix.1941 (De Long, Good, Caldwell & Plummer), dry mounted (USNM).

Paratypes. Mexico: Distrito Federal: 1 ♂, 4 ♀, Mexico City, 13.ix.1939; 2 ♂, 2 ♀, same but 18 km W Mexico City, 1.ix.1939; 1 ♂, San Jacinto, 30.vi.1932 (D. F. Dampf); 1 ♂, Lomas de Chapultepec, 25.vii.1939 (D. F. Dampf); - Guerrero: 1 ♂, Acapulco road, 8000-9000 ft, 23.xi.1938 (J. S. Caldwell); - Hidalgo: 1 ♂, 2 ♀, same data as holotype; 1 ♀, 17 mi. N Zimapán; - Michoacán: 7 ♂, 9 ♀, 3 km NE Tarecuato, 11.ii.1989, *Baccharis* sp. (D. Hollis); 4 ♂, 2 ♀, 1 km S San Juan Carapan, 12.ii.1989, *Baccharis* sp. (D. Hollis); 3 ♀, 1 ♀, 83 km W Ciudad Hidalgo, 14.ii.1989, *Baccharis* sp. (D. Hollis); dry and slide mounted (BMNH, MHNG, USNM).

U. S. A.: Haiti: 1 ♀, Kenskoff, dry mounted (USNM).

Distribution. Mexico (Distrito Federal, Guerrero, Hidalgo, Michoacán), U. S. A. (Haiti) (CALDWELL 1941 as *T. longistylus* and *T. proximata* p. p.; TUTHILL 1944 as *T. collaris* p. p.; TUTHILL 1945 as *T. proximata* p. p.; present data).

Description. Adult. Male. Head pale green to ochreous, pronotum brownish to ochreous, mesopraescutum and mesoscutum pale green with reddish brown patches, mesoscutellum and metascutellum pale green. Antennal segments 1-3 ochreous, 4-10 dark brown. Legs brownish green. Forewing transparent with brown veins. Female. Head and thorax ochreous, mesopraescutum with reddish brown patches, mesoscutum with reddish brown stripes. Abdomen and genitalia ochreous. Forewing transparent with brown veins. Hindwing transparent.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with very short apical process, hindmargin weakly produced. Paramere as long as proctiger, narrow, evenly curved, subacute with small sclerotised tooth apically, medial constriction absent; inner surface covered in thick setae along the hindmargin. Apical dilatation of distal segment of aedeagus short, rounded. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (3): HW 0.55-0.56; AL -; ALHW -; L3/L4 1.69-1.86; LLHW 0.47-0.65; TLHW 1.00-1.02; WL 2.84-2.89; WLHW 5.09-5.44; WLW 2.67-2.77; a/b 1.41-1.65; c/d 1.72-1.83; MP 0.35-0.43; MPH 0.64-1.03; PL 0.32-0.37; AEL 0.26-0.31. ♀ (2): HW 0.57-0.60; AL 0.84; ALHW 1.47; L3/L4 -; LLHW 0.52-0.60; TLHW 0.90-1.00; WL 3.07-3.44; WLHW 5.11-6.04; WLW 2.69-2.75; a/b 1.51-1.56; c/d 1.75-1.89; FP 0.83-0.87; FPH 1.45-1.46; FPC 3.77-4.14; FSP 1.16-1.24.

Larva unknown.

Host-plant. Adults were collected on *Baccharis* sp.

Comments. Based on identification labels it seems that TUTHILL'S (1944) *T. collaris* corresponds to *C. graciliforceps*.

***Calinda hodkinsoni* sp. n.**

(Figs 15c, 19m, 22g, 32a, b, 42k)

Trioxa aguilari sensu Burckhardt, 1988: 157, p. p., nec Tuthill, 1959: 21.

Trioxa parviceps sensu Burckhardt, 1988: 160, p. p., nec Tuthill, 1964: 29.

Holotype ♂, Argentina: Salta, Pampa Grande E La Viña, 25°30'S 65°33'W, 26.xi.1983 (L. E. Peña), dry mounted (MHNG).

Paratypes. Argentina: 1 ♂, 2 ♀, same data as holotype; 1 ♂, Tucumán, 450 m, 24-28.i.1905 (S. V. Steinbach); dry and slide mounted (MHNG, NMHU).

Distribution. Argentina (Salta, Tucumán).

Description. Adult. Head, thorax and abdomen black. Antennal segments 1-6 brownish yellow, 7-10 black. Genitalia black, paramere yellow with black apex. Legs brownish yellow. Forewing transparent with brownish yellow veins and radular spinules. Hindwing transparent.

Forewing rounded apically; vein Rs weakly sinuous; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, with very short apical process, hindmargin almost straight. Paramere shorter than proctiger, wide, truncate with two teeth apically, medial constriction weak; entire inner surface covered in long setae. Apical dilatation of distal segment of aedeagus elongate, with ventro-basal hook which is distant from shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis short, triangular. Valvula ventralis bearing short, basally well-defined saw.

Measurements: ♂ (1): HW 0.54; AL 1.78; ALHW 2.74; L3/L4 1.89; LLHW 0.98; TLHW 1.39; WL 3.23; WLHW 5.98; WLW 2.50; a/b 1.28; c/d 2.40; MP 0.40; MPH 0.74; PL 0.35; AEL 0.43. ♀ (1): HW 0.57; AL 1.60; ALHW 2.81; L3/L4 1.59; LLHW 1.09; TLHW 1.37; WL 3.66; WLHW 6.42; WLW 6.42; a/b 1.36; c/d 1.89; FP 1.21; FPHW 2.12; FPC 5.76; FSP 1.15.

Larva and host-plant unknown.

Comments. BURCKHARDT (1988) recorded the species as *Trioza aguilari* and *T. parviceps* from Argentina.

Calinda hollisi sp. n.

(Figs 17b, 20h, 23o, 39c-e, 44c)

Holotype ♂, Costa Rica: San José, Zurquí de Moravia, 1600 m, iii.1993, Malaise trap (P. Hanson), dry mounted (BMNH).

Paratypes. Costa Rica: Cartago Province: 5 ♂, 2 ♀, Route 2, 5-10 km S Cartago, 27.ii.1989, *Baccharis trinervis* (D. Hollis); 1 ♀, 6 km S Guatuso, 30.i.1991, *Baccharis trinervis* (D. Hollis); - Guanacaste Province: 18 ♂, 13 ♀, Santa Rosa National Park, San Gabriel track, 20.vi.1989, *Baccharis* sp. (D. Hollis); - San José Province: 1 ♀, Empalme to Santa María de Dota road, 2000 m, 11.iv.1992, *Baccharis trinervis* (D. Hollis); 23 ♂, 13 ♀, Zurquí de Moravia, 1600 m, 16.iii.-3.iv.1992, *Baccharis trinervis* (D. Hollis); 3 ♂, 2 ♀, same data as holotype but ii-iv.1991; 1 ♂, 2 ♀, same data but iii-iv.1992; 2 ♂, 2 ♀, same data but ii.1993; 5 ♂, 3 ♀, same data but ii-iv.1993; 2 ♂, 1 ♀, same data but iv-v.1993; 1 ♂, 3 ♀, same data but ii.1994; 6 ♀, same data but iii.1994; 5 ♀, same data but v.1994; 4 ♀, same data but ii.1995; dry, slide mounted and in preserved in alcohol (BMNH, MHNG).

Distribution. Costa Rica (Cartago, Guanacaste and San José Provinces).

Description. Adult. Head, pronotum and thorax ochreous, mesopraescutum with dark brown stripes in the middle and laterally, metascutellum with dark brown patches. Antennal segments 1-4 ochreous, 5-10 dark brown. Abdomen black with light intersegmental membranes. Genitalia ochreous. Forewing transparent with brown veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, without apical process, hindmargin weakly pro-

duced. Paramere shorter than proctiger, narrow, truncate apically, with two strongly sclerotised teeth, medial constriction strong; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventral hook which is distant from shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with moderately developed hump in the middle. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1): HW 0.51; AL 0.96; ALHW 1.88; L3/L4 1.62; LLHW 0.67; TLHW 0.86; WL 2.74; WLHW 5.37; WLW 2.71; a/b 1.38; c/d 2.17; MP 0.32; MPH 0.63; PL 0.31; AEL 0.25. ♀ (1) HW 0.51; AL 0.92; ALHW 1.80; L3/L4 1.43; LLHW 0.67; TLHW 1.35; WL 3.21; WLHW 6.41; WLW 2.49; a/b 1.49; c/d 1.78; FP 0.94; FPHW 1.84; FPC 4.70; FSP 1.29.

Larva unknown.

Host-plant. Adults were collected on *Baccharis trinervis* (Lam.) Pers. and *B. sp.*

***Calinda huggerti* sp. n.**

(Figs 14f, 19g, 22a, 27c, d, 42d)

Holotype ♂, Ecuador: Napo, Papallacta, 24.ii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: Napo: 5 ♂, 3 ♀, same data as holotype; 1 ♀, above Papallacta, 3900 m, 10.ii.1983 (L. Huggert); 1 ♂, 1 ♀, above Papallacta, 4100 m, 13.iii.1983 (L. Huggert); 1 ♀, N Papallacta, 4000 m, 23.ii.1983 (L. Huggert); 1 ♂, 1 ♀, W Papallacta, 4000 m, 10-23.ii.1983, yellow pan trap (L. Huggert); dry and slide mounted (MZLU, MHNG).

Distribution. Ecuador (Napo).

Description. Adult. Head, pronotum, mesoscutellum and metascutellum ochreous, mesopraescutum ochreous with dark brown stripes in the middle and laterally. Antennal segments 1-4 ochreous, 5-10 dark brown. Abdomen black with whitish intersegmental membranes. Genitalia ochreous. Forewing transparent with brown veins.

Forewing rounded apically; vein Rs more or less straight; costal setae shorter than distance between them. Surface spinules present at the base of cells c+sc, m₂ and the distal portion of cells r₁, m₁ and cu_{1a}; radular spinules forming indistinct patches. Mesonotum with short setae. Male proctiger, in profile, slender, tubular without apical process, hindmargin almost straight. Paramere shorter than proctiger, wide, truncate apically, with two sclerotised apical teeth, weak constriction present in apical third; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is close to shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae dense, present only laterally, regular spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (2): HW 0.58-0.62; AL 1.51; ALHW 2.60; L3/L4 1.44; LLHW 0.58-0.74; TLHW 1.06-1.09; WL 2.76-2.91; WLHW 4.70-4.96; WLW 2.69-2.79; a/b 1.18-1.22; c/d 1.83-1.85; MP 0.36-0.39; MPH 0.58-0.67; PL 0.33-0.35; AEL 0.40. ♀ (2): HW 0.62-0.63; AL 1.18-1.20; ALHW 1.87-1.94; L3/L4 1.41-1.80; LLHW 0.33-0.37; TLHW 1.11-1.16; WL 3.08-3.34; WLHW 4.97-5.27; WLW 1.84-1.90; a/b 1.18-1.25; c/d 1.72-1.94; FP1.01-1.04; FPHW 1.63-1.65; FPC 2.88-3.61; FSP 1.04-1.14.

Larva and host-plant unknown.

Calinda inca sp. n.

(Figs 15a, 19k, 22e, 36e, f, 42h)

Holotype ♂, Peru: Ancash: Bandera Blanca, 30.xii.1958 (L. D. Tuthill), slide mounted (USNM).

Paratypes. Peru: 1 ♂, 1 ♀, same data as holotype; slide mounted (USNM, MHNG).

Distribution. Peru (Ancash).

Description. Adult. Male. Head and thorax ochreous, mesopraescutum and mesoscutum with brownish patches. Antennal segments 1-4 ochreous, 5-10 dark brown. Genitalia greenish ochreous. Legs ochreous. Forewing transparent with ochreous veins. Female. Head and thorax ochreous, mesopraescutum and mesoscutum with brownish patches. Antennal segments 1-4 ochreous, 5-10 dark brown. Abdomen greenish ochreous with brown apical projection of proctiger. Legs ochreous. Forewing transparent with ochreous veins.

Forewing bluntly angular apically; vein Rs weakly sinuous; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with very short apical process, hindmargin weakly produced. Paramere as long as proctiger, wide, truncate with two strongly sclerotised teeth apically, medial constriction strong; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate without processes. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with moderately developed hump medially. Ventral margin very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (2): HW 0.52-0.56; AL 1.15; ALHW 2.05; L3/L4 1.80-2.13; LLHW 0.63-0.77; TLHW 1.02-1.10; WL 2.94-3.50; WLHW 5.65-6.25; WLW 2.88-3.24; a/b 1.40-1.52; c/d 1.78-2.12; MP 0.29; MPH 0.52-0.55; PL 0.28; AEL 0.22-0.25. ♀ (1): HW 0.54; AL -; ALHW -; L3/L4 1.07; LLHW 0.78; TLHW 1.11; WL 3.56; WLHW 6.59; WLW 2.83; a/b 1.35; c/d 2.28; FP 0.92; FPHW 1.70; FPC 3.68; FSP 1.56.

Larva and host-plant unknown.

***Calinda jibara* sp. n.**

(Figs 14a, 21k, 41k)

Holotype ♂, Ecuador: Napo, Papallacta, 24.ii.1983 (L. Huggert), slide mounted (MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Male. Head, pronotum and mesoscutellum ochreous, mesopraescutum and mesoscutum ochreous with brownish patches. Antennal segments 1-4 ochreous, 5-10 dark brown. Genitalia greenish ochreous. Legs ochreous. Forewing transparent with ochreous veins.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with apical process half as long as proctiger wide, hindmargin strongly produced. Paramere longer than proctiger, narrow, bent in the middle, subacute apically with strongly sclerotised tooth, weakly constricted in apical third; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate.

Measurements: ♂ (1): HW 0.60; AL -; ALHW -; L3/L4 1.40; LLHW 0.58; TLHW 1.17; WL 3.31; WLHW 5.52; WLW 2.74; a/b 1.55; c/d 1.84; MP 0.38; MPH 0.63; PL 0.45; AEL 0.26.

Female, larva and host-plant unknown.

***Calinda longicaudata* sp. n.**

(Figs 1a, 17f, 20m, 24b, 38c, d, 44g)

Trioza proximata sensu Caldwell, 1941: 422, p. p.; sensu Tuthill, 1943: 574, 1945: 1, p. p.; Boldt & Robbins, 1994: 52; nec Crawford, 1911.

Holotype ♂, U. S. A.: Arizona, Ramsey Canyon, Huachuca Mts, 30.x.1937 (Oman), dry mounted (USNM).

Paratypes. Mexico: Coahuila: 4 ♂, 4 ♀, Highway 57, 35 mi. SE Saltillo, 27.iv.1990, *Baccharis pteronioides* (P. E. Boldt) (MHNG) dry mounted; - Distrito Federal: 1 ♂, 1 ♀, 18 km W Mexico City, 1.ix.1939; 1 ♀, San Jacinto, 28.ix.1932 (Alfons Dampf); 2 ♂, 2 ♀, same data but 30.vi.1932; - Hidalgo: 1 ♂, 12 mi. S Jacala, 26.ix.1941 (De Long, Good, Caldwell & Plummer) (USNM); 1 ♂, El Popo Mt., 11,500 ft, 28.ix.1941 (De Long, Good, Caldwell & Plummer) (USNM); - Mexico: 6 ♂, 3 ♀, Ixtapan del Oro, 8.vi.1941, (Alfonso Dampf); 3 ♂, 3 ♀, km 20 Toluca Road, 24.xi.1938 (J. S. Caldwell); - Nuevo León: 1 ♀, C. Agave Vic. Regine, State border Nuevo León and Texas, 7.iii.1960; 4 ♂, 4 ♀, 4 larvae, Highway 61, 8 km N La Ascensión, 28.iv.1990, *Baccharis pteronioides* (P. E. Boldt); - Veracruz: 1 ♂, Jalapa, 13.x.1945; (MHNG, USNM) dry and slide mounted.

U.S.A: Arizona: 10 ♂, 12 ♀, same data as holotype; 1 ♂, 1 ♀, same but foothills Huachuca Mts; 1 ♀, Santa Rita Mts, 25.iv.1940 (Oman); - New Mexico: 10 larvae, Grant County, Highway NM 90, 26 mi. E Silver City, 15.vii.1988, *Baccharis pteronioides* (T. O. Robbins); - Texas: 2 ♂, 2 ♀, Jeff Davis County, Highway 166, 20 mi. W Fort Davis, 26.v.1988, *Baccharis pteronioides* (P. E. Boldt); 4 ♂, 6 ♀, same data but CDRI Arboretum, Highway 118, 4 mi. SE Fort Davis, 15.x.1986; 1 ♂, same data but Musquiz Creek; dry and slide mounted (MHNG, USNM).

Distribution. Mexico (Coahuila, Distrito Federal, Hidalgo, México, Nuevo León, Veracruz), U.S.A. (Arizona, New Mexico, Texas) (CALDWELL 1941, p. p.; TUTHILL 1943, 1945, p. p.; BOLDT & ROBBINS 1994; all as *Trioza proximata*; present data).

Description. Adult. Head ochreous. Antennal segments 1-2 brownish ochreous, 3-6 ochreous, 7-10 black. Thorax, abdomen and genitalia brownish ochreous. Forewing transparent with ochreous veins. Hindwing transparent.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, hindmargin produced. Paramere as long as proctiger, narrow, curved, narrowly rounded apically with one sclerotised tooth, medial constriction absent; inner surface covered in thick setae along hindmargin. Apical dilatation of distal segment of aedeagus elongate. Female proctiger shorter than four times circumanal ring length, straight, pointed apically; apical process without teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (3): HW 0.54-0.57; AL 1.06; ALHW 1.86; L3/L4 1.85-2.00; LLHW 0.61-0.74; TLHW 1.05-1.11; WL 2.56-2.63; WLHW 4.61-4.85; WLW 2.45-2.60; a/b 1.29-1.51; c/d 1.52-1.92; MP 0.30; MPH 0.53-0.69; PL 0.29-0.33; AEL 0.29-0.30. ♀ (3): HW 0.51-0.59; AL 1.04; ALHW 1.82; L3/L4 1.75-2.08; LLHW 0.69-0.75; TLHW 1.09-1.16; WL 2.43-2.66; WLHW 5.07-5.80; WLW 2.43-2.66; a/b 1.36-1.58; c/d 1.61-1.82; FP 1.06-1.09; FPH 1.80-2.40; FPC 6.05-6.75; FSP 0.98-1.11.

Fifth instar larva. Brown with lighter abdominal base. Body elongate, abdomen relatively narrow and slightly angled apically. Abdominal margin with long lanceolate setae, apex with few dorsal lanceolate setae. Abdominal apex with a pair of indistinct tubercles. Circumanal ring developed, small, angular.

Host-plant. The larvae develop in the flower heads of *Neomolonia pteronioides* (DC.) Hellwig (= *Baccharis pteronioides*).

Comments. According to collection labels, plants of *Neomolonia pteronioides* in New Mexico were heavily infested by *C. longicaudata* and its parasites.

***Calinda longicollis* sp. n.**

(Figs 16d, 20a, 23b, 25e, f, 43h)

Holotype ♂, Ecuador: Napo, Papallacta, 24.ii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: Napo: 1 ♀, same data as holotype; 1 ♀, above Papallacta, 4100 m, 13.iii.1983 (L. Huggert); 1 ♂, Quito - Baeza Road, 4100 m, iii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Head, pronotum, mesopraescutum and mesoscutum black with brownish yellow stripes, mesoscutellum ochreous, metascutellum and metapseudonotum dark brown sometimes with ochreous stripes. Antennal segments 1-2 brownish yellow, 3-5 yellow, 6-10 black. Abdomen black; basal and apical portions

of paramere black, the rest ochreous. Legs brownish yellow, tarsi black. Forewing yellowish with brownish yellow veins. Hindwing transparent.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with very short apical process, hindmargin strongly produced. Paramere as long as proctiger, lamellar in basal two thirds, tapering in apical third with forward directed, sclerotised tooth apically, without medial constriction; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger longer than four times circumanal ring length, truncate apically; apical process without dorsal teeth; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis short, triangular. Valvula ventralis long, straight without apical saw.

Measurements: ♂ (1): HW 0.57; AL -; ALHW -; L3/L4 1.67; LLHW 0.61; TLHW 1.35; WL 3.27; WLHW 5.74; WLW 2.84; a/b 1.52; c/d 1.82; MP 0.39; MPH 0.68; PL 0.36; AEL 0.36. ♀ (1): HW 0.62; AL -; ALHW -; L3/L4 1.57; LLHW 0.58; TLHW 1.27; WL 3.64; WLHW 5.87; WLW 1.82; a/b 1.36; c/d 1.92; FP 0.97; FPHW 1.56; FPC 4.04; FSP 1.33.

Larva and host-plant unknown.

Calinda longistylus (Crawford), comb. n., stat. rev. (Figs 3a, 4a, 18a, 20q, 24f, 36a, b, 44l)

Trioza longistylus Crawford, 1910a: 233. Lectotype ♀, U. S. A.: Colorado (Baker) (USNM), here designated (examined); Crawford, 1911: 434; Crawford, 1914: 82; Tuthill, 1943: 575. Synonymised with *T. collaris* by Tuthill, 1944: 159.

Trioza collaris sensu Crawford, 1914: 81, p. p.; Boldt & Robbins, 1994: 50; nec Crawford, 1910a.

Material examined. U.S.A.: Arizona: 1 ♂, Littlefield, 14.iii.1930, *Pluchea sericea* (D. E. Fox), 148 B-30; 1 ♀, Santa Cruz River near Tubac, 23.x.1937 (Oman); 1 ♂, 1 ♀, Santa Rita, iv.1935 (Oman); 1 ♀, same data but Sasabe, x.1937; 1 ♂, Tucson 27.viii.1938 (D. J. & J. N. Knull); 1 ♂, 3 ♀, Tumacacari, 22.vii.1938 (B. H. Beamer); 1 ♂, Huachuca Mountains, 9.ix.1938 (D. J. & J. N. Knull); - California: 1 ♂, 1 ♀, Los Altos, 24.i.19 (W. M. Giffard); 2 ♂, same data but Santa Clara County, 20.v.1927; 2 ♂, Mount Springe, 25.vii.1938 (B. H. Beamer); 4 ♂, 3 ♀, San Francisco, 8.iv.1927 (E. D. Ball); 4 ♀, same data but 20.vi.1935 (Oman); 1 ♂, Sacramento, 25.x.1928, Alfalfa (C. C. Wilson); 5 ♂, 8 ♀, Salinas, 8.iv.1926 (E. D. Ball); 2 ♂, 8 ♀, Santa Cruz Mountains (A. Koebele); 3 ♂, 1 ♀, same data but viii.; 1 ♂, 1 ♀, same data but 13.viii.1938 (R. H. Beamer); 1 ♀, Keene Camp, 24.v.1946 (A. J. & J. N. Knull); 2 ♂, 2 ♀, Santa Rosa Mountains, 27.v.1946 (D. J. & J. N. Knull); 3 ♂, Argus Mts, x, 91 km (A. Koebele Collection) (USNM) dry mounted; - Nevada: 1 ♂, Glendale, 16.xii.1929, *Pluchea sericea* (D. E. Fox) (USNM); - New Mexico: 1 ♂, Mesilla Park, National Monument, 7.xi.1938 (Christenson); 1 ♂, same data but 21.iv.1909; 1 ♀, Dona Ana County, 16.v.1969, *Tamarix* sp. (D. Liensen); 4 ♂, 4 ♀, Eddy County, 4 mi. E Loving, Pecos River, 13.iv.1989, *Baccharis salicina* (P. E. Boldt); 1 ♂, same data but 22.viii.1988; 8 ♂, 9 ♀, same data but Highway 31, 4 mi. E Loving, 2.v.1988; 4 ♂, 4 ♀, same data but Eddy County, Lincoln National forest. Sitting

Bull Falls, *Baccharis salicina* (P. E Bolt); 2 ♂, 2 ♀, 2 larvae, same data but 16.viii.1989 (T. O. Robbins); 1 ♂, 2 ♀, Eddy County, 4 mi. N Malaga, 19.viii.1968, *Tamarix* sp. (D. Liensen); - Texas; 2 ♂, Jeff Davis County, Fort Davis, Limpia Creek, 19.ix.1986, *Baccharis salicifolia* (P. E. Boldt); - without locality data: 2 ♀, D. L. Crawford collection; dry and slide mounted (MHNG, USNM).

Distribution. U. S. A. (Arizona, California, Nevada, New Mexico, Texas) (CRAWFORD 1911, 1914; TUTHILL 1943; BOLDT & ROBBINS 1994, as *T. collaris*; present data).

Description. Adult. Head ochreous. Antennal segments 1-6 brownish ochreous, 7-10 brown. Mesopraescutum and mesoscutum ochreous with brown patches, mesoscutellum and metascutellum ochreous. Legs and abdomen brownish ochreous. Genitalia ochreous with black apex. Forewing ochreous with brown bands along the veins, radular spinules brown. Hindwing transparent.

Forewing bluntly angular apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, hindmargin moderately produced. Paramere shorter than proctiger, narrow, evenly curved, subacute with heavily sclerotised tooth apically, medial constriction absent; inner surface covered in thick setae along hindmargin. Apical dilatation of distal segment of aedeagus shortly oval, with ventro-basal hook which is close to shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (3); HW 0.59-0.67; AL 1.02-1.13; ALHW 1.62-1.92; L3/L4 1.83-1.85; LLHW 0.64-0.81; TLHW 0.94-1.02; WL 3.22-3.42; WLHW 5.10-5.46; WLW 2.70-2.80; a/b 1.30-1.58; c/d 1.64-1.88; MP 0.33-0.38; MPH 0.49-0.64; PL 0.37-0.40; AEL 0.29-0.31. ♀ (2); HW 0.62-0.67; AL 0.91; ALHW 1.47; L3/L4 1.77-2.00; LLHW 0.64-0.67; TLHW 0.87-0.90; WL 3.28-3.54; WLHW 5.28-5.29; WLW 2.72-2.83; a/b 1.29-1.33; c/d 1.78-1.91; FP 0.78-0.83; FPHW 1.24-1.26; FPC 4.58-4.61; FSP 1.00-1.08.

Fifth instar larva. Straw-coloured with brown intersegmental membranes. Body elongate, abdomen relatively broad and evenly rounded apically. Abdominal margin with long lanceolate setae, apex with few dorsal lanceolate setae. Abdominal apex without teeth. Circumanal ring developed, small, angular.

Host-plant. Larvae were collected in the flower heads of *Baccharis salicina* Torr. & Gray, adults also on *Pingraea salicifolia* (Ruiz & Pavón) Hellwig (= *Baccharis salicifolia*).

Comments. TUTHILL (1944) synonymised *C. longistylus* with *C. collaris* from which it differs in the presence of yellowish or ochreous bands along the veins of the forewing, and in details of the male and female genitalia (see keys). CALDWELL'S (1941) records of *T. longistylus* concern *C. graciliforceps*.

Calinda magniforceps (Tuthill), comb. n. (Figs 13b, 18h, 21b, 26a, b, 41b)

Trioza magniforceps Tuthill, 1964: 29. Holotype ♂, Peru: Cuzco, 13.vi.1959, *Baccharis* sp. (L. D. Tuthill) (USNM) (examined).

Material examined. Peru: Cuzco: 1 holotype ♂, 8 ♂, 8 ♀ paratypes, Cuzco, 13.vi.1959, *Baccharis* sp. (L. D. Tuthill); 1 ♂, 2 ♀, 8 km S Cuzco, 3500 m, 6.viii.1971 (C. & M. Vardy), B. M. 1971-533; 3 ♂, 1 ♀, Sacsayhuaman, 3900 m, 5.viii.1971 (C. & M. Vardy), B.M. 1971-533; dry and slide mounted (BMNH, MHNG, USNM).

Distribution. Peru (Cuzco) (TUTHILL 1964; HODKINSON & WHITE 1981; present data).

Description. Adult. Head and thorax ochreous, mesoscutum with reddish brown stripes. Antennal segments 1-5 ochreous, 6-10 dark brown. Abdomen ochreous with sometimes almost black dorsum. Genitalia ochreous. Legs ochreous. Forewing yellowish with brown veins. Hingwing transparent.

Forewing subacute apically; vein Rs weakly sinuous; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, posteriorly strongly produced in basal quarter, with apical process half as long as proctiger wide. Paramere shorter than proctiger, triangular with subapical carina and digitiform antero-apical process, inner surface covered in setae in apical half and along hindmargin. Apical dilatation of distal segment of aedeagus elongate with membranous projection. Female genitalia globular, proctiger shorter than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Ventral margin of female subgenital plate without apical process. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1): HW 0.60; AL -; ALHW -; L3/L4 1.65; LLHW -; TLHW 1.45; WL 3.27; WLHW 5.45; WLW 2.52; a/b 1.41; c/d 1.50; MP 0.46; MPH 0.77; PL 0.43; AEL 0.35. ♀ (1): HW 0.62; AL -; ALHW -; L3/L4 1.54; LLHW -; TLHW 1.02; WL 3.32; WLHW 5.35; WLW 2.61; a/b 1.39; c/d 1.73; FP 1.04; FPHW 1.68; FPC 2.41; FSP 1.96.

Larva unknown.

Host-plant. Adults were collected on *Baccharis* sp.

Calinda mendocina (Kieffer & Jörgensen), comb. n., stat. rev. (Figs 17a, 20g, 23n, 34e, f, 44b)

Cecidotrioza mendocina Kieffer & Jörgensen, 1910: 372. Syntypes ♂, ♀ and galls, Argentina: Province Mendoza, Pedregal and Chacras de Coria, xii-vi., *Baccharis salicifolia* (P. Jörgensen) (destroyed). Synonymised with *Trioza testacea* (Blanchard) by Burckhardt, 1988: 155.

Cecidotrioza mendocina; Burckhardt, 1988: 155, misspelling.

Trioza testacea/aguilari-complex, Form B, p. p. Burckhardt, 1988: 159.

Material examined. Argentina: Catamarca: 1 ♂, 1 ♀, Andalhuallas, 2000 m, 19.i.1968 (Golbach, Terán & Willink); - Mendoza: 29 ♂, 18 ♀, Mendoza Valley, Uspallata, 1900 m.

30.xii.1995, *Pingraea salicifolia* (D. Burckhardt) #29(3); 4 ♂, 4 ♀, same data but Uspallata to Potrerillos, 1700 m, 30-31.xii.1995, #30(2); - Neuquén: 1 ♂, 50 km N Chos Malal, 8.xii.1983 (L. E. Peña); - Río Negro: 1 ♂, El Bolsón, 22.iv.1961, (Topál), Nr. 410; - Salta: 2 ♂, 1 ♀, 2500 m, 12.xii.1905 (S. V. Steinbach); dry and slide mounted, and preserved in alcohol (BMNH, FMLT, MHNG, NHMB, NMHU, USNM).

Distribution. Argentina (Catamarca, Mendoza, Neuquén, Río Negro, Salta) (KIEFFER & JÖRGENSEN 1910; present data).

Description. Adult. Head and thorax yellow to ochreous, sometimes mesopraescutum with reddish patches. Antennal segments 1-4 ochreous, 5-10 dark brown. Legs and abdomen ochreous. Genitalia light green. Forewing transparent with ochreous veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, posterior margin moderately produced. Paramere as long as proctiger, slender, truncate with two teeth apically, hindmargin strongly inflated in basal half, medial constriction moderate; entire inner surface covered in setae, with thick setae along hindmargin. Apical dilatation of distal segment of aedeagus elongate, with small ventro-basal toothlet close to shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (5): HW 0.56-0.65; AL 0.84-1.05; ALHW 1.45-1.88; L3/L4 1.46-1.92; LLHW 0.54-0.83; TLHW 0.88-1.04; WL 2.55-3.21; WLHW 4.40-5.63; WLW 2.60-2.71; a/b 1.21-1.53; c/d 1.43-2.07; MP 0.31-0.35; MPH 0.53-0.61; PL 0.31-0.39; AEL 0.31-0.41. ♀ (3): HW 0.56-0.59; AL 1.01; ALHW 1.71-1.74; L3/L4 1.90-2.00; LLHW 0.57-0.63; TLHW 0.89-1.05; WL 3.18-3.34; WLHW 5.55-5.76; WLW 2.45-2.90; a/b 1.51-1.64; c/d 0.91-1.61; FP 0.76-0.84; FPHW 1.36-1.42; FPC 4.00-4.32; FSP 1.02-1.07.

Larva unknown.

Host plant. The larva induces galls in the flower heads of *Pingraea salicifolia* (Ruiz & Pavón) Hellwig (= *Baccharis salicifolia*) (Kieffer & Jörgensen, 1910).

Comments. The original description of *C. mendocina* is poor and the type material is lost (BURCKHARDT 1987a, 1988). KIEFFER & JÖRGENSEN's (1910) drawing of the male genitalia shows a postero-basally inflated paramere. Material recently collected in the Mendoza Valley near the type localities and on the same host shares this feature. This suggests, contrary to BURCKHARDT (1988), that *C. mendocina* is specifically distinct from *C. testacea*. In addition, *C. mendocina* is restricted to *P. salicifolia* whereas *C. testacea* is monophagous on *P. sphaerocephala*. The latter does not grow in the Mendoza Region.

***Calinda microcephala* sp. n.**

(Figs 15h, 19q, 22m, 31c, d, 43c)

Holotype ♂, Ecuador: Napo, above Papallacta, 4100 m, 13.iii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: Napo: 5 ♂, same data holotype; 1 ♂, 1 ♀, above Papallacta, 3900 m, 10.ii.1983 (L. Huggert); 1 ♂, 1 ♀, N Papallacta, 4100 m, 14.ii.1983 (L. Huggert); 1 ♀, Papallacta, 24.ii.1983 (L. Huggert); 1 ♂, W of Papallacta, 4000 m, 10-23.ii.1983, yellow pan trap (L. Huggert); 3 ♂, Quito - Baeza Road, 4100 m, iii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Male. Head light brown, pronotum brownish yellow with dark brown patches, mesopraescutum and mesoscutum dark brown and brownish yellow laterally, mesoscutellum yellow. Antennal segments dark brown. Legs, abdomen and genitalia light yellow. Forewing and hindwing transparent. Female. Head and thorax ochreous, mesopraescutum with brown stripes, mesoscutum brownish ochreous. Antennal segments 1-2 yellowish brown, 3-10 black. Abdomen brown. Genitalia ochreous with apical process brown. Legs ochreous with black tarsi. Forewing transparent with brownish yellow veins. Hindwing transparent.

Forewing rounded apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with long setae. Male proctiger, in profile, slender, tubular, without apical process, straight posteriorly. Paramere shorter than proctiger; wide, truncate apically, with two heavily sclerotised apical teeth; weakly constricted in apical quarter; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate and with ventro-basal hook which is distant from shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae dense, present dorsally and laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis short, triangular. Valvula ventralis bearing short, basally well-defined saw.

Measurements: ♂ (1): HW 0.58; AL -; ALHW -; L3/L4 0.70; LLHW -; TLHW 1.45; WL 4.03; WLHW 6.95; WLW 2.44; a/b 1.48; c/d 1.77; MP 0.47; MPH 0.81; PL 0.37; AEL 0.43. ♀ (1): HW 0.59; AL -; ALHW -; L3/L4 1.05; LLHW 0.81; TLHW 1.44; WL 4.29; WLHW 7.27; WLW 2.49; a/b 1.42; c/d 1.72; FP 1.42; FPHW 2.41; FPC 5.07; FSP 1.06.

Larva and host-plant unknown.

***Calinda muiscas* sp. n.**

(Figs 18f, 20v, 24l, 45d)

Holotype ♂, Peru: Cuzco, Ollantaytambo, 19.xii.1983 (L. Huggert), dry mounted (MZLU).

Paratype. Peru: 1 ♂, Cuzco, 13.vi.1959 (L. D. Tuthill), slide mounted (USNM).

Distribution. Peru (Cuzco).

Description. Adult. Male. Head and thorax brownish ochreous. Antennal segments 1-4 ochreous, 5-10 dark brown. Legs, abdomen and genitalia ochreous, paramere brownish ochreous. Forewing yellowish transparent with ochreous veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, with very short apical process, weakly produced posteriorly. Paramere shorter than proctiger, spiniform, broadened subapically, subacute apically, with strongly sclerotised tooth; inner surface covered in setae in apical half. Apical dilatation of distal segment of aedeagus elongate and with ventro-basal hook which is distant from shaft.

Measurements: ♂ (1): HW 0.50; AL -; ALHW -; L3/L4 2.14; LLHW 0.66; TLHW 1.14; WL 2.73; WLHW 5.46; WLW 2.79; a/b 1.36; c/d 2.00; MP 0.37; MPH 0.74; PL 0.35; AEL 0.40.

Female, larva and host-plant unknown.

Calinda osorii sp. n.

(Figs 13d, 18k, 21d, 36c, d, 41d)

Holotype ♂, Colombia: Boyaca, Sogamoso, 29.v.1946 (E. A. Chapin), station 46-23, dry mounted (USNM).

Paratypes. Colombia: 54 ♂, 23 ♀, same data as holotype; dry and slide mounted (MHNG, USNM).

Distribution. Colombia (Boyaca).

Description. Adult. Head brownish yellow, pronotum and mesoscutellum ochreous, mesopraescutum and mesoscutum with reddish brown stripes. Antennal segments 1-4 ochreous, 5-10 dark brown. Abdomen brownish ochreous. Legs and genitalia ochreous. Forewing yellowish with ochreous veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with apical process half as long as proctiger wide. Paramere shorter than proctiger, wide basally, strongly narrowed apically, with strongly sclerotised, forward directed apical tooth; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate without processes. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (3): HW 0.51-0.64; AL 1.14-1.28; ALHW 2.24-2.37; L3/L4 1.73-2.00; LLHW 0.73-0.82; TLHW 1.16-1.23; WL 3.23-3.36; WLHW 6.22-6.33; WLW 0.66-0.79; a/b 1.46-1.51; c/d 1.69-1.81; MP 0.36-0.41; MPH 0.66-0.79; PL 0.31-0.34; AEL 0.25-0.28. ♀ (3): HW 0.54-0.60; AL 1.14-1.28; ALHW 2.06-2.24;

L3/L4 1.57-2.08; LLHW 0.63-0.72; TLHW 1.02-1.20; WL 3.60-3.71; WLHW 6.03-6.77; WLW 2.25-2.63; a/b 1.46-1.54; c/d 1.72-1.95; FP 1.04-1.07; FPHW 1.78-1.95; FPC 4.52-4.65; FSP 1.49-1.62.

Larva and host-plant unknown.

***Calinda otavalo* sp. n.**

(Figs 15i, 19r, 22n, 31a, b, 43d)

Holotype ♂, Ecuador: Napo, Papallacta, 3700 m, 25.ii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: Napo: 1 ♂, 11 ♀, same data as holotype; 2 ♀, above Papallacta, 4100 m, 13.iii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Head yellow. Antennal segments 1-2 dark brown, 3-10 black. Thorax ochreous, mesopraescutum and mesoscutum with light brown stripes. Legs and abdomen ochreous, genitalia yellow, paramere with black apex. Forewing transparent with brownish yellow veins. Hindwing transparent.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, without apical process, straight posteriorly. Paramere shorter than proctiger, wide, truncate apically, with two apical sclerotised teeth, medial constriction strong; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate, with ventro-basal hook which is close to shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae dense, present dorsally and laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis short, triangular. Valvula ventralis bearing short, basally well-defined saw.

Measurements: ♂ (3): HW 0.56-0.62; AL 2.04-2.08; ALHW 1.22-1.57; L3/L4 1.22-1.57; LLHW 0.79-1.78; TLHW 1.40-1.61; WL 3.90-4.05; WLHW 6.29-7.18; WLW 2.58-2.65; a/b 0.56-1.30; c/d 1.98-2.26; MP 0.45-0.51; MPHWH 0.74-0.85; PL 0.37-0.44; AEL 0.45-0.47. ♀ (5): HW 0.56-0.65; AL 1.60-2.11; ALHW 2.80-3.35; L3/L4 1.23-2.83; LLHW 0.51-1.09; TLHW 1.43-1.60; WL 3.86-4.50; WLHW 6.89-7.38; WLW 2.43-2.54; a/b 1.27-1.48; c/d 1.96-2.24; FP 1.46-1.63; FPHW 2.24-2.72; FPC 3.36-5.46; FSP 1.03-1.35.

Larva and host-plant unknown.

***Calinda panamensis* (Brown & Hodkinson), comb. n.**

(Figs 3b, 4c, 16b, 19t,
22p, 30c, d, 43f)

Trioxa panamensis Brown & Hodkinson, 1988: 228. Holotype ♂, Panama: Chiriquí, Volcán Baru, 3200-3475 m, 20.v.1977 (H. & W. Wolda), #3a-13, slide mounted (USNM) (examined).

Material examined. Costa Rica: 2 ♂, 2 ♀, San José, Zurquí de Moravia, 1600 m, ii.1993, malaise trap (P. Hanson); 2 ♂, 2 ♀, same data but iii-iv.1993; 1 ♂, same data, but vi-vii.1993; 10 ♂, 5 ♀, same data but ii.1994; 1 ♂, 4 ♀, same data but iii.1994; 1 ♂, 1 ♀, same data but iv.1994; 25 ♂, 29 ♀, same data but ii.1995; 6 ♂, 4 ♀, Cerro de la Muerte, Villa Mills, 3000 m, 23.vi.1989, *Pentacalia andicola* (D. Hollis); 4 ♂, 3 ♀, same data but 21.iii.-5.iv.1992; dry, slide mounted and in alcohol (BMNH, MHNG).

Panama: holotype ♂, Chiriquí, Volcán Baru, 3200-3475 m, 20.v.1977 (H. & W. Wolda) #3a-13 (USNM).

Distribution. Costa Rica (San José), Panama (Chiriquí).

Description. Adult. Male. Head brownish yellow, thorax black dorsally. Antennal segments 1-5 brownish yellow, 6-10 dark brown. Abdomen brown. Legs brownish ochreous. Forewing transparent with brown veins. Female. Head and pronotum brownish yellow, mesopraescutum ochreous with brown patches centrally, mesopraescutum brownish yellow with dark brown stripes, mesoscutellum yellow. Antennal segments 1-4 brownish yellow, 5-10 dark brown. Abdomen brownish yellow with dark brown intersegmental membranes. Genitalia brownish yellow. Forewing transparent with brown veins.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with long setae. Male proctiger, in profile, thick, tubular; without apical process, hindmargin weakly produced. Paramere shorter than proctiger, wide, truncate apically with two strongly sclerotised teeth, medial constriction weak; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis short, triangular. Valvula ventralis bearing long, basally indistinctly defined saw.

Measurements: ♂ (2): HW 0.50-0.63; AL 1.43; ALHW 2.65; L3/L4 1.70; LLHW 0.62-0.76; TLHW 1.24; WL 3.23-3.65; WLHW 5.79-5.98; WLW 2.47-2.48; a/b 1.25-1.29; c/d 1.54-1.95; MP 0.35; MPH 0.56-0.65; PL 0.28; AEL 0.31-0.37. ♀ (1): HW 0.55; AL 1.49; ALHW 2.71; L3/L4 1.85; LLHW 0.69; TLHW 1.29; WL 3.43; WLHW 6.24; WLW 2.60; a/b 1.48; c/d 1.92; FP 0.84; FPHW 1.53; FPC 3.50; FSP 1.24.

Larva unknown.

Host-plant. *Pentacalia andicola* (Turcz.) (BMNH data).

Calinda parviceps (Tuthill), comb. n.

(Figs 15b, 19l, 22f, 31e, f, 42i)

Trioza parviceps Tuthill, 1964: 29. Holotype ♂, Peru: Cuzco, 13.vi.1959, *Senecio rudbeckiaefolius* (L. D. Tuthill), dry mounted (USNM) (examined).

Material examined. Peru: 1 holotype ♂, 8 paratypes, Cuzco, 13.vi.1959, *Senecio rudbeckiaefolius* (L. D. Tuthill); dry and slide mounted (USNM).

Distribution. Peru (Cuzco) (TUTHILL 1964; HODKINSON & WHITE 1981).

Description. Adult. Head reddish brown, pronotum ochreous, mesopraescutum reddish brown with ochreous borders, mesoscutum reddish brown, mesoscutellum ochreous. Antennal segments 1-5 ochreous, 6-10 dark brown. Abdomen ochreous and brown, paramere reddish brown. Legs ochreous. Forewing transparent with brown veins.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with long setae. Male proctiger, in profile, thick, tubular, without apical process, hindmargin almost straight. Paramere shorter than proctiger, wide, truncate apically, with two apical teeth, strongly constricted in apical third; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is close to shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae dense, present dorsally and laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump in the middle. Valvula dorsalis short, triangular. Valvula ventralis bearing short, basally well-defined saw.

Measurements: ♂ (1): HW 0.54; AL -; ALHW -; L3/L4 1.59; LLHW 0.83; TLHW 1.16; WL 3.23; WLHW 5.98; WLW 2.65; a/b 1.31; c/d 2.10; MP 0.38; MPH 0.70; PL 0.31; AEL 0.35. ♀ (1): HW 0.53; AL -; ALHW -; L3/L4 1.56; LLHW 0.81; TLHW 1.26; WL 3.36; WLHW 6.34; WLW 2.33; a/b 0.91; c/d 1.79; FP 0.98; FPHW 1.84; FPC 4.26; FSP 1.06.

Larva unknown.

Host-plant. Adults were collected on *Senecio rudbeckiaefolius* Meyen & Walp (Tuthill, 1964).

Comments. The records of *T. parviceps* from Argentina and Bolivia (BURCKHARDT 1988) concern *C. hodkinsoni* and *C. reversyi* respectively.

***Calinda patagonica* sp. n.**

(Figs 15e, 19o, 22i, 28c, d, 42m)

Holotype ♂, Chile: XII Reg., Prov. Ultima Esperanza, Parque Nacional Torres del Paine, Laguna Azul, 400 m. 14.i.1991, *Senecio patagonicus* (D. Burckhardt), #39b, slide mounted (MHNG).

Paratypes. Chile: XII. Reg.: 5 ♀, 7 larvae, same data as holotype; 6 larvae, same data but Laguna Mellizas to Lago Toro, 0-100 m, 3.i.1991, #38; 7 larvae, same data but Lago Grey, Río Pingo, 100 m, 12.i.1991 #37b; 2 larvae, same data but km 140-150 on Punta Arenas to Punta Delgada Road, 0-50 m, 18.i.1991, #46; dry and slide mounted (MHNG).

Distribution. Chile (XII Reg.).

Description. Adult. Head dark yellow. Antennal segments 1-2 yellowish brown, 3-7 yellow, 8-10 black. Pronotum and mesoscutellum dark yellow, mesopraescutum and mesoscutum brown greenish, the latter with dark reddish brown stripes. Abdomen yellowish brown with black stripes, proctiger dark brown and subgenital plate

yellowish brown. Legs brownish yellow with black patches, tarsi black. Forewing yellowish with dark brown veins. Hindwing transparent.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular; without apical process, hindmargin weakly produced. Paramere as long as proctiger, wide, truncate apically, with two apical teeth, antero-apically obliquely truncate, postero-apically strongly produced, medial constriction weak; entire inner surface covered in fine setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger shorter than four times circumanal ring length, pointed apically; apical process with dorsal teeth; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with large hump in the middle. Valvula dorsalis short, triangular. Valvula ventralis bearing short, basally well-defined saw.

Measurements: ♂ (1): HW 0.53; AL -; ALHW -; L3/L4 1.46; LLHW 0.84; TLHW 1.09; WL 2.60; WLHW 4.90; WLW 2.77; a/b 1.33; c/d 1.50; MP 0.33; MPHW 0.62; PL 0.33; AEL 0.35. ♀ (1): HW 0.51; AL -; ALHW -; L3/L4 1.58; LLHW 0.84; TLHW 1.10; WL 2.65; WLHW 5.20; WLW 2.48; a/b 1.31; c/d 1.62; FP 0.76; FPHW 1.60; FPC 5.00; FSP 1.04.

Fifth instar larva. Entirely dark brown to black, several specimens lighter. Body elongate, abdomen very broad and evenly rounded apically. Abdominal margin without lanceolate setae, at most with a few fine setae, apex without dorsal lanceolate setae. Abdominal apex without teeth. Circumanal ring reduced to a few pores.

Host-plant. The larvae develop in the flower heads of *Senecio patagonicus* Hooker & Arnett where they produce galls.

Calinda pehuenche sp. n.

(Figs 16i, 20f, 23m, 35a, b, 44a)

Holotype ♂, Chile: IX Reg., Prov. Malleco, Alto San José, 4 km N Traiguén, 5.viii.1995 (T. Olivares), dry mounted (NHMB).

Paratypes. Chile: V Reg.: 1 ♀, Putaendo, 10 km N San Felipe, 700 m, 17.v.1993, *Pingraea salicifolia* (D. Burckhardt), #10(1); - Reg. Metropolitana: 1 ♂, Reg., between Corral Quemado and Farellones, 1700 m, 19.v.1993, *Pingraea salicifolia* (D. Burckhardt), #14(1); - VIII Reg.: 5 ♂, 5 ♀, Culenco, Santa Juana to Nacimiento, 1.v.1996, *Baccharis* sp. (Garrido); 4 ♂, 2 ♀, Puente Arinco, Santa Juana, 80 km S Concepción, 12.v.1996, *Baccharis* sp. (Garrido); 8 ♂, 7 ♀, San José, Santa Juana to Nacimiento, 84 km S Concepción, 12.v.1996, *Baccharis* sp. (Garrido); 6 ♂, 10 ♀, Puente San Juan 1, Villa los Boldos, km 33 Concepción to Florida / Villa San Ramón Road, 9.vi.1996, *Baccharis* sp. (Garrido); - IX Reg.: 1 ♂, 1 ♀, same data as holotype; 1 ♂, 4 ♀, same data but 3 km N Traiguén road to Victoria, 7.viii.1995, *Baccharis* sp.; dry and slide mounted, and preserved in alcohol (MHNG, NHMB).

Distribution. Chile (V Reg., Reg. Metropolitana, VIII and IX Reg.).

Description. Adult. Head brownish yellow, pronotum light yellow, mesopraescutum and mesoscutum with brownish yellow stripes, mesoscutellum yellow.

Antennal segments 1-2 brownish yellow, 3 light yellow, 4-10 brownish yellow. Abdomen black. Legs and genitalia brownish yellow. Forewing yellowish with brownish yellow veins.

Forewing bluntly angular apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular with very short apical process, hindmargin weakly produced. Paramere shorter than proctiger, narrow, truncate apically, with two apical teeth, medial constriction strong, hindmargin in basal half strongly produced; inner surface along hindmargin with a band of thick setae. Apical dilatation of distal segment of aedeagus elongate, with small ventro-basal hook which is close to shaft. Female proctiger longer than four times circumanal length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (12): HW 0.57-0.62; AL 0.91-1.11; ALHW 1.52-1.79; L3/L4 1.25-2.88; LLHW 0.56-0.86; TLHW 0.84-1.02; WL 298-3.27; WLHW 4.85-5.36; WLW 2.59-3.03; a/b 1.25-1.72; c/d 1.19-1.56; MP 0.34-0.43; MPH 0.57-0.70; PL 0.33-0.37; AEL 0.29-0.32. ♀ (10): HW 0.62-0.65; AL 0.99-1.11; ALHW 1.57-1.79; L3/L4 1.42-1.82; LLHW 0.53-0.76; TLHW 0.84-1.00; WL 3.12-3.46; WLHW 5.08-5.49; WLW 1.84-2.81; a/b 1.42-1.77; c/d 1.31-1.67; FP 0.85-0.93; FPHW 1.31-1.48; FPC 3.00-4.09; FSP 1.01-1.33.

Larva unknown

Host-plant. Adults were collected on *Pingraea salicifolia* (Ruiz & Pavón) Hellwig.

***Calinda penai* sp. n.**

(Figs 14c, 19d, 21m, 41m)

Holotype ♂, Chile: I Reg., Tarapacá, Belén, 18°21'S 69°31'W, 3400 m, 12.xi.1983 (L. E. Peña), dry mounted (MHNG).

Paratypes. Chile: I Reg.: 4 ♂, same data as holotype; 1 ♂, 1 ♀, Putre, viii.1965, Chilca (= *Baccharis* sp.) (H. Vargas); dry and slide mounted (MHNG, USNM).

Distribution. Chile (I Reg.).

Description. Adult. Head, thorax and abdomen ochreous, mesopraescutum with yellowish brown stripes, mesoscutum with black longitudinal stripes, mesoscutellum yellow. Antennal segments 1-5 ochreous, 6-10 brown. Paramere brownish yellow, male proctiger and subgenital plate yellow. Legs ochreous, tarsi black. Forewing transparent with ochreous veins. Hindwing transparent.

Forewing subacute apically; vein Rs weakly sinuous; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, quadrate with short apical process. Paramere longer than proctiger, narrow, subacute with sclerotised tooth apically, medial constriction weak; inner

surface covered in setae in the centre and in apical half. Apical dilatation of distal segment of aedeagus elongate without process. Female genitalia as in *C. gibbosa* but processes of proctiger and subgenital plate slightly longer.

Measurements: ♂ (1): HW 0.70; AL -; ALHW -; L3/L4 1.77; LLHW 0.77; TLHW 1.29; WL 4.18; WLHW 5.97; WLW 5.97; a/b 1.54; c/d 1.70; MP 0.31; MPHWH 0.44; PL 0.57; AEL 0.34.

Larva unknown.

Host-plant. Adults have been collected on *Baccharis* sp.

Comments. The record of *T. gibbosa* from Chile (BURCKHARDT 1988) concerns *C. penai*.

Calinda peruana (Tuthill), comb. n. (Figs 13c, 18i, 21c, 26c, d, 41c)

Trioxa peruana Tuthill, 1959: 21. Holotype ♂, Peru: Huánuco, near San Rafael, 31.xii.1958, *Baccharis* sp. (L. D. Tuthill) (USNM) (examined).

Material examined. Peru: holotype ♂, 21 paratypes, Huánuco, near San Rafael, 2300 m, 31.xii.1958, *Baccharis* sp. (L. D. Tuthill); 1 ♀, Ancash, Monterrey Baños, 23.xi.1958 (L. D. Tuthill); dry and slide (USNM).

Distribution. Peru (Ancash, Huánuco, Lima) (TUTHILL 1959; HODKINSON & WHITE 1981)

Description. Adult. Head brownish ochreous, pronotum ochreous, meso-praescutum with two brown to reddish brown stripes, mesocutum ochreous with six brown stripes, mesoscutellum ochreous. Antennal segments 1-9 ochreous, 10 black. Abdomen with genitalia ochreous. Legs ochreous. Forewing transparent to yellowish with ochreous veins.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu₂; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, hindmargin strongly expanded in basal half, with apical process half as long as proctiger wide. Paramere shorter than proctiger, wide, truncate apically with a subapical carina and digitiform antero-apical process; medial constriction absent; inner surface covered in setae in the centre and laterally. Apical dilatation of distal segment of aedeagus elongate with membranous projection. Female genitalia globular, proctiger shorter than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate strongly rounded, with very short apical process. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1): HW 0.56; AL 1.17; ALHW 2.09; L3/L4 1.87; LLHW 0.63; TLHW 1.16; WL 2.96; WLHW 5.29; WLW 2.79; a/b 1.42; c/d 1.67; MP 0.43; MPHWH 0.76; PL 0.31; AEL 0.31. ♀ (1): HW 0.56; AL -; ALHW -; L3/L4 1.62; LLHW 0.55; TLHW 1.04; WL 3.08; WLHW 5.50; WLW 2.77; a/b 1.53; c/d 1.51; FP 0.88; FPHW 1.57; FPC 4.40; FSP 1.66.

Larva unknown.

Host-plant. Adults were collected on *Baccharis* sp.

***Calinda peterseni* sp. n.** (Figs 1d, 3c, 4d, 14g, h, 19h, 22b, c, 28a, b, 42e, f)

Holotype ♂, Chile: XII Reg., Prov. Ultima Esperanza, Paso de la Laguna Dorotea, W Puerto Natales. 250 m, 10.xii.1995, *Senecio tricuspidatus* (D. Burckhardt), #33, dry mounted (MHNG).

Paratypes. Chile: XII Reg.: 47 ♂, 53 ♀, same data as holotype; 7 ♂, 7 ♀, Prov. Ultima Esperanza, Monumento Natural Cueva del Milodón, 150 m, 11.i.1991, *Senecio tricuspidatus* (D. Burckhardt), #34; 1 ♀, Prov. Ultima Esperanza, Parque Nacional Torres del Paine, Laguna Azul, 400 m, 14.i.1991, *Senecio tricuspidatus* (D. Burckhardt), #39b; 7 ♀, Prov. Magallanes, Estación La Cumbre, Sierra Baguales, 5.xii.1987, *Senecio* sp. (J. Petersen C.); 1 ♂, Magallanes, Reserva Natural Magallanes, 27.xii.1978-26.i.1979, *Senecio* sp. (J. Petersen C.); 1 ♀, same data but 20-24.xi.1978; dry and slide mounted (BMNH, MHNG, NHMB, USNM).

Distribution. Chile (XII Reg.).

Description. Adult. Male. Head, thorax and legs light yellowish brown, mesopraescutum with light brown suboval patch. Proctiger light yellowish brown; paramere light brown with black apex; subgenital plate dark brown. Forewing yellowish with dark brown veins and light brown radular spinules. Hindwing transparent. Female. Head, pronotum, mesopraescutum and mesoscutum ochreous with four brownish patches, mesoscutellum yellow, abdomen and genitalia ochreous. Antennal segments 1-4 yellow, 5-10 black. Legs yellow with black tarsi. Forewing including veins yellow.

Forewing subacute apically, vein Rs more or less straight; costal setae shorter than distance between them; surface spinules present in cells c + sc and at base of cells r_2 , m_2 and cu_2 , absent from apical portions of wing; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, without apical process, hindmargin weakly produced. Paramere shorter than proctiger, wide, truncate with two teeth apically; medial constriction weak; entire inner surface covered in fine setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which distant from shaft. Female proctiger shorter than four times circumanal ring length, subacute apically; apical process with dorsal teeth; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis short, triangular. Valvula ventralis bearing short, basally well-defined saw.

Measurements: ♂ (6): HW 0.48-0.58; AL 0.88-0.90; ALHW 1.40-1.66; L3/L4 1.27-1.55; LLHW 0.22-0.28; TLHW 0.87-1.04; WL 2.30-2.54; WLHW 4.21-4.85; WLW 1.95-2.51; a/b 1.03-2.07; c/d 1.47-1.91; MP 0.27-0.31; MPH 0.52-0.60; PL 0.23-0.26; AEL 0.29-0.32. ♀ (6): HW 0.55-0.61; AL 0.83-0.90; ALHW 1.43-1.64; L3/L4 1.25-1.60; LLHW 0.22-0.27; TLHW 0.85-0.96; WL 2.63-2.83; WLHW 4.61-4.87; WLW 2.29-2.55; a/b 1.44-1.60; c/d 1.60-1.89; FP 0.75-0.77; FPH 1.26-1.38; FPC 3.80-4.05; FSP 1.12-1.25.

Larva unknown.

Host-plant. Adults were collected on *Senecio tricuspidatus* Hooker & Arnett.

***Calinda plaumanni* sp. n.**

(Figs 17g, 20n, 24c, 40e, f, 44h)

Holotype ♂, Brazil: Santa Catarina, Nova Teutonia, 23.vi.1943 (F. Plaumann), B.M.1957-341, dry mounted (BMNH).

Paratypes. Brazil: 1 ♂, 18 ♀, same data as holotype; 1 ♀, Rio de Janeiro, SE Brazil, Serra do Alto Itatiaya [= Agulhas Negras], 21.ii.1922 (E. G. Holt); dry and slide mounted (BMNH, MHNG, USNM).

Distribution. Brazil (Rio de Janeiro, Santa Catarina).

Description. Adult. Male. Head, pronotum, mesoscutum and mesoscutellum ochreous. Antennal segments 1-4 ochreous, 5-10 brownish. Abdomen and genitalia ochreous. Legs yellow with black tarsi. Forewing transparent with yellowish veins. Hindwing transparent. Female. Head and thorax yellow to ochreous. Antennal segments 1-3 ochreous, 4-10 brownish. Genitalia ochreous with brownish apical projection. Legs ochreous. Forewing and hindwing transparent.

Forewing subacute apically; vein Rs more or less straight; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, without apical process, hindmargin almost straight. Paramere shorter than proctiger, narrow, subacute apically, with anteriorly directed sclerotised tooth; medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate without processes. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with moderately developed hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1): HW 0.47; AL -; ALHW -; L3/L4 -; LLHW 0.79; TLHW 1.26; WL 2.44; WLHW 5.19; WLW 2.68; a/b 1.54; c/d 1.65; MP 0.34; MPH 0.72; PL 0.27; AEL 0.24. ♀ (2): HW 0.49-0.56; AL -; ALHW -; L3/L4 1.66-2.09; LLHW 0.67-0.79; TLHW 1.10-1.14; WL 2.76-3.53; WLHW 5.63-6.30; WLW 2.71-3.21; a/b 1.47-1.51; c/d 1.40-1.81; FP 0.72-0.79; FPHW 1.41-1.47; FPC 4.16-4.80; FSP 1.22-1.24.

Larva and host-plant unknown.

***Calinda proximata* (Crawford), comb. n.**

(Figs 13h, 21h, 39a, b, 41h)

Trioza proximata Crawford, 1911: 424, 435. Lectotype ♂, Mexico: Oaxaca (C. F. Baker) (USNM) (examined), here designated.

Material examined. Mexico: lectotype ♂, 1 ♂, 3 ♀, paralectotypes, Oaxaca (C. F. Baker); 1 ♀ paralectotype, Orizaba (C. F. Baker); dry and slide mounted (USNM).

Distribution. Mexico (Oaxaca) (CRAWFORD 1911, 1914; TUTHILL 1943).

Description. Adult. Body yellowish ochreous to almost white, light greenish yellow. Antennae black apically. Female genitalia black. Forewing transparent.

Forewing rounded apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu₂; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process, hindmargin produced. Paramere as long as proctiger, narrow, curved, subacute with sclerotised tooth apically, without medial constriction; inner surface covered in thick setae along hindmargin. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1) HW 0.58; AL -; ALHW -; L3/L4 1.93; LLHW 0.59; TLHW 1.09; WL 3.51; WLHW 6.05; WLW 2.90; a/b 1.55; c/d 1.73; MP 0.40; MPH 0.69; PL 0.35; AEL -. ♀ (1): HW 0.61; AL -; ALHW -; L3/L4 1.93; LLHW 0.62; TLHW 1.07; WL 3.16; WLHW 5.18; WLW -; a/b -; c/d -; FP 0.90; FPHW 1.48; FPC 3.33; FSP 0.82.

Larva and host-plant unknown.

Comments. CALDWELL's (1941) record of *T. proximata* concerns *C. longicaudata* and *C. graciliforceps*. *T. proximata* was recorded from Arizona on *Baccharis bigelovii* by BOLDT & ROBBINS (1994); this material may belong to an additional undescribed species.

***Calinda reversyi* sp. n.**

(Figs 15f, 22k)

Trioxa parviceps sensu Burckhardt, 1988: 160, figs 11f, k, p, 12b, p. p., nec Tuthill, 1964: 29.

Holotype ♂, Bolivia: Potosí, Lecori, S Potosí, 3200 m, 26-27.xii.1984 (L. E. Peña), slide mounted (MHNG).

Paratype. Bolivia: 1 ♂, Chuquisaca/Tarija, Padcoyo to Camargo, 2800-3200 m, 26-28.xii.1984 (L. E. Peña), slide mounted (MHNG).

Distribution. Bolivia (Chuquisaca, Potosí, Tarija).

Description. Adult. Head, thorax and abdomen mostly brown, mesonotum with lighter longitudinal stripes. Antennal segments 1 and 2 brown, 3 and 4 yellowish, 5-10 light brown. Forewing transparent with ochreous veins.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu₂; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular; without apical process, hindmargin weakly produced. Paramere as long as proctiger, wide, truncate and with two teeth apically, postero-apically slightly produced, medial constriction weak; entire inner surface covered in fine setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft.

Measurements: ♂ (2): HW 0.53; AL 0.91; ALHW 1.65; L3/L4 1.54-2.00; LLHW 0.70-0.85; TLHW 1.04; WL 2.75; WLHW 5.19-5.29; WLW 2.43-258; a/b 1.33-1.36; c/d 1.33-2.06; MP 0.33-0.40; MPHWH 0.62-0.73; PL 0.29-0.30; AEL 0.33-0.37.

Female, larva and host-plant unknown.

Comments. The record of *T. parviceps* from Bolivia (BURCKHARDT 1988) concerns *C. reversyi*.

***Calinda salicifoliae* sp. n.**

(Figs 13e, 18l, 21e, 35f, g, 41e)

Holotype ♂, Chile: V Reg., Los Patos, 35 km N San Felipe, 100 m, 17.v.1993, *Pingraea salicifolia* (D. Burckhardt), #11(2), dry mounted (MHNG).

Paratypes. Chile: IV Reg.: 1 ♂, 1 ♀, 31 km W Ovalle, 19.ii.1985, *Baccharis* sp. (D. Hollis); 2 ♂, 1 ♀, Ovalle, Valle del Encanto, 17.ii.1985, *Baccharis linearis* ssp. *linearis* (D. Hollis); 2 ♂, Parque Nacional Fray Jorge, foot of Hill, 18.ii.1985, *Baccharis linearis* ssp. *linearis* (D. Hollis); - V Reg.: 3 ♂, Parque Nacional La Campana, 1100 m, 11.i.1985 (D. Hollis); 12 ♂, 6 ♀, 1 larva, same data as holotype; 1 ♂, Putaendo, 10 km N San Felipe, 700 m, 17.v.1993, *Pingraea salicifolia* (D. Burckhardt); 9 ♂, 12 ♀, Prov. Petorca, El Guayacan, 20 km E Cabildo, 800 m, 17.v.1993, *Baccharis* sp. (D. Burckhardt), #12(1); 1 ♂, 1 ♀, Quillota, Fundo Francesco Araya, 5.v.1993, *Pingraea salicifolia* (D. Burckhardt), #7(1); - Reg. Metropolitana: 10 ♂, 6 ♀, between Corral Quemado and Farellones, 1700 m, 19.v.1993, *Baccharis* sp. (D. Burckhardt), #14(1); dry and slide mounted (BMNH, MHNG).

Distribution. Chile (IV, V Reg., Reg. Metropolitana).

Description. Adult. Head, mesopraescutum and mesoscutellum ochreous. Antennal segments 1-8 ochreous, 9-10 dark brown. Pronotum and mesoscutum ochreous with reddish brown stripes, metascutellum dark brown. Abdomen dark brown. Genitalia and legs ochreous. Forewing transparent with ochreous veins. Hindwing transparent.

Forewing subacute apically; vein Rs abruptly bent towards foremargin in the middle; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger covered in long setae, in profile, thick, tubular, with apical process half as long as proctiger wide, hindmargin strongly produced. Paramere as long as proctiger, narrow and straight, subacute apically, with strongly sclerotised apical tooth, without medial constriction; inner surface densely covered in thick setae. Apical dilatation of distal segment of aedeagus elongate without processes. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (6): HW 0.51-0.58; AL 0.85-0.86; ALHW 1.47-1.59; L3/L4 1.64-2.88; LLHW 0.48-0.76; TLHW 0.78-0.88; WL 2.39-2.90; WLHW 4.44-5.09; WLW 2.60-3.00; a/b 1.29-1.54; c/d 1.52-1.70; MP 0.30-0.35; MPHWH 0.55-0.69; PL

0.34-0.39; AEL 0.21-0.23. ♀ (6): HW 0.54-0.61; AL 0.81; ALHW 1.50; L3/L4 1.45-3.57; LLHW 0.41-0.69; TLHW 0.78-0.93; WL 2.58-2.96; WLHW 4.69-5.24; WLW 2.52-2.64; a/b 1.19-1.56; c/d 1.38-1.66; FP 0.65-1.16; FPHW 1.18-1.52; FPC 3.53-4.47; FSP 1.29-1.60.

Fifth instar larva. Brown, abdomen ochreous with brown depressions. Body elongate, abdomen narrowly rounded apically. Abdominal margin with moderately long lanceolate setae, apex with a few dorsal lanceolate setae. Abdominal apex without teeth, indented in the middle. Circumanal ring absent.

Host-plant. *Pingraea salicifolia* (Ruiz & Pavón) Hellwig, adults were also collected on *Baccharis linearis* (Ruiz & Pavón) Pers. ssp. *linearis* (Ruiz & Pavón) Pers. and *B.* sp.

***Calinda simoni* (Tuthill), comb. n.**

(Figs 18d, 20t, 24i, 38a, b, 45b)

Trioza simoni Tuthill, 1959: 22. Holotype ♂, Peru: Junin, slope of Palca, 31.xii.1958, *Baccharis* sp. (L. D. Tuthill) (USNM) (examined).

Material examined. Peru: holotype ♂, 12 paratypes, Junin, slope of Palca, 31.xii.1958, *Baccharis* sp. (L. D. Tuthill) (USNM); 1 ♂, Cuzco, Sacsayhuaman, 3900 m, 5.viii.1971 (C. & M. Vardy) B.M.1971-533; dry and slide mounted (BMNH, USNM).

Distribution. Peru (Cuzco, Junin, Lima) (TUTHILL 1959; HODKINSON & WHITE 1981; present data).

Description. Adult. Male. Head yellow, pronotum ochreous, mesopraescutum yellow with black stripes, mesoscutellum yellow, metascutellum black. Antennal segments 1-8 brownish ochreous, 9-10 black. Abdomen black with yellow intersegmental membranes. Genitalia yellow with brown paramere. Legs brownish yellow. Forewing yellowish with ochreous veins. Female. Head yellow, pronotum ochreous, mesopraescutum yellow with black stripes, mesoscutellum yellow, metascutellum black. Antennal segments 1-8 brownish ochreous, 9-10 black. Abdomen greenish. Genitalia greenish with brown apical projection. Legs brownish yellow. Forewing yellowish with ochreous veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, quadrate, without apical process. Paramere longer than proctiger, narrow, subacute apically, with sclerotised anteriorly directed apical tooth, medial constriction weak; inner surface covered in setae in apical half. Apical dilatation of distal segment of aedeagus elongate with membranous subacute apex. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process with dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (1): HW 0.58; AL -; ALHW -; L3/L4 -; LLHW 0.66; TLHW 1.22; WL 3.69; WLHW 6.36; WLW 2.81; a/b 1.77; c/d 1.77; MP 0.31; MPHWH 0.53;

PL 0.36; AEL 0.20. ♀ (1): HW 0.64; AL -; ALHW -; L3/L4 1.90; LLHW 0.64; TLHW 1.17; WL 3.98; WLHW 6.22; WLW 2.71; a/b 1.63; c/d 1.86; FP 1.05; FPHW 1.64; FPC 5.00; FSP 1.44.

Larva unknown.

Host-plant. Adults were collected on *Baccharis* sp.

***Calinda spatulata* sp. n.**

(Figs 14e, 19f, 21o, 30e, f, 42c)

Holotype ♂, Ecuador: Napo, Papallacta, 24.ii.1983 (L. Huggert), dry mounted (MZLU).

Paratypes. Ecuador: Napo: 24 ♂, 32 ♀, same data as holotype; 1 ♀, above Papallacta, 10.ii.1983 (L. Huggert); dry and slide mounted (MHNG, MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Head dark brown with vertex, foveae and coronal suture black. Antennal segments 1 black, 2-5 dirty yellow, 6-10 black. Pronotum and mesopraescutum dirty yellow. Abdomen, ochreous. Subgenital plate black, paramere black, proctiger dirty yellow. Legs brownish yellow, tarsi black. Forewing yellowish with brownish yellow veins.

Forewing rounded apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae longer than distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with long setae. Male proctiger, in profile, thick, tubular, with very short apical process, hindmargin strongly produced. Paramere shorter than proctiger, widely lanceolate in profile, subacute apically, with posteriorly directed tooth, medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate and with ventro-basal hook which is distant from shaft. Female proctiger longer than four times circumanal ring length, pointed apically; apical process with dorsal teeth; peg setae dense, present dorsally and laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate with flattened hump medially. Valvula dorsalis triangular. Valvula ventralis long, straight without apical saw.

Measurements: ♂ (3): HW 0.68-0.75; AL 1.85-2.39; ALHW 2.47-3.27; L3/L4 1.77-2.21; LLHW 0.69-0.81; TLHW 1.28-1.38; WL 4.14-4.31; WLHW 5.52-6.25; WLW 2.42-2.62; a/b 1.33-1.54; c/d 1.38-1.76; MP 0.41-0.47; MPHWH 0.52-0.60; PL 0.36-0.40; AEL 0.38-0.39. ♀ (3): HW 0.72-0.74; AL 1.91-2.00; ALHW 2.59-2.74; L3/L4 1.61-1.89; LLHW 0.58-0.90; TLHW 1.30-1.33; WL 4.62-4.91; WLHW 6.33-6.64; WLW 2.44-2.54; a/b 1.34-1.40; c/d 1.33-1.56; FP 0.99-1.05; FPHW 1.38-1.42; FPC 3.50-4.13; FSP 1.24-1.33.

Larva and host-plant unknown.

***Calinda testacea* Blanchard, comb. rev.**

(Figs 1c, e, 3d, 4b, 5b-d, 6b-e, 17d, 20k, 23q, 37f, g, 44e)

Calinda testacea Blanchard, 1852: 310. Lectotype ♂, Chile: San Carlos (MNHN), slide mounted (examined).

Calinda nigromaculata Blanchard, 1852: 311. Lectotype ♀, Chile: Valdivia (MNHN), slide mounted (examined); synonymised by Burckhardt, 1988: 155.

Trioza testacea; Burckhardt, 1988: 155.

Material examined. Chile: VIII Reg.: lectotype ♂ of *Calinda testacea*, San Carlos; - X Reg.: lectotype ♀ of *Calinda nigromaculata*, Valdivia; 1 ♂, 1 ♀, Rincón de la Piedra, 20 km SE Valdivia, 31.i.1985, *Baccharis* sp. (D. Hollis); 1 ♂, 17-21 km Valdivia to Curiñanco Road, 200-400 m, 28-30.xii.1990, *Drimys winteri* (Agosti & Burckhardt), #23; 4 ♂, 2 ♀, same data but *Pingraea sphaerocephala*; 2 ♂, 2 ♀, Antuco near Puyehue, 4.ii.1985, *Baccharis patagonica* ssp. *palenae* (D. Hollis); 8 ♂, 16 ♀, 7 larvae, Prov. Osorno, Aguas Calientes, near Puyehue, 500 m, 1-3.ii.1996, *Pingraea sphaerocephala* (D. Burckhardt), #71(9); 7 ♂, 3 ♀, Pucatrihue, near Bahía Mansa, 2.ii.1985 *Baccharis* sp. (D. Hollis); 1 ♂, Prov. Chiloé, Chiloé Island, Al Pacífico road, near Castro, 7.ii.1985 (D. Hollis); 3 ♂, 1 ♀, same but 42 km N Castro, 9.ii.1985 *Baccharis* sp. (D. Hollis); 4 ♂, 4 ♀, same but Huillincó to Cucao road, 6.ii.1985, *Baccharis* sp. (D. Hollis); 3 ♂, same but Chepu, 19.ii.1991 (T. Cekalovic); 12 ♂, 12 ♀, same but Parque Nacional Chiloé, Cucao 30 km SW Castro, 10-70 m, 28.ii.1992, *Pingraea sphaerocephala* (D. Burckhardt), #34a(5); 4 ♂, 13 ♀, 1 exuvia, same but Parque Nacional Chiloé, Rancho Grande, Río Cypresal, 0-150 m, 8.ii.1996 (D. Burckhardt), #80(4); 2 ♂, 2 ♀, 2 larvae, same but Cucao to Huillincó Road, 42°29'S 74°03'W, 50 m, 16.i.1994, *Pingraea sphaerocephala* (D. Burckhardt), #57; 1 ♂, 1 ♀, same but Chaitén, 14.ii.1989 (T. Cekalovic); 7 ♂, 7 ♀, Prov. Llanquihue, Parque Nacional Alerce Andino, Laguna Chaiquenes, 200-350 m, 3-6.i.1993, *Pingraea sphaerocephala* (D. Burckhardt), #36a(2); dry and slide mounted, and preserved in alcohol (BMNH, MHNG, MNHN).

Distribution. Chile (VIII and X Reg.).

Description. Adult. Head and thorax yellowish green. Antennal segments 1-2 brownish yellow, 3-6 yellow, 7-10 black. Pronotum green, mesopraescutum and mesoscutum with reddish brown stripes. Legs and abdomen yellowish green. Genitalia yellow, paramere yellow with black apex. Forewing yellowish with light brown veins. Hindwing transparent.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, narrow triangles. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with very short apical process, hindmargin moderately produced. Paramere shorter than proctiger, narrow, truncate and slightly expanded apically, with a sub-apical carina and each an anterior and posterior toothlet, medial constriction absent; entire inner surface sparsely covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger longer than four times circumanal ring length, straight, pointed apically; apical process without dorsal teeth; peg setae sparse, present only laterally, irregularly distributed. Circumanal ring not extended distally. Ventral margin of female subgenital plate with moderately developed hump medially. Valvula dorsalis very long, bearing short apical incision. Valvula ventralis with long, basally indistinctly defined saw.

Measurements: ♂ (15) HW 0.51-0.57; AL 0.91-1.09; ALHW 1.72; L3/L4 1.16-2.36; LLHW 0.49-0.83; TLHW 0.93-1.52; WL 2.56-3.17; WLHW 4.94-5.74; WLW 2.42-3.03; a/b 1.23-2.37; c/d 1.59-2.17; MP 0.28-0.47; MPH 0.54-0.87; PL 0.31-0.35; AEL 0.24-0.30. ♀ (12): HW 0.50-0.59; AL 0.81-1.02; ALHW 1.50-2.00;

L3/L4 1.85-2.40; LLHW 0.44-1.00; TLHW 1.00-1.17; WL 2.51-3.63; WLHW 5.02-6.44; WLW 2.45-2.85; a/b 1.30-1.52; c/d 1.45-1.94; FP 0.84-1.22; FPHW 1.71-2.20; FPC 3.94-6.00; FSP 1.77-2.51.

Fifth instar larva. Brown; meso and metathorax and abdominal margin dark brown, membranes lighter; thoracic dorsum yellowish, abdominal dorsum ochreous to light brown. Body elongate, abdomen relatively narrow and angular apically. Abdominal margin with moderately long lanceolate setae, apex with a group of dorsal lanceolate setae. Abdominal apex with two conspicuous teeth. Circumanal ring absent.

Host-plant. The larvae live in the flowerheads of *Pingraea sphaerocephala* (Hooker & Arnett) Hellwig; adults were also collected on *Baccharis patagonica* Hook. & Arn. ssp. *palenae* (Phil.) Hellwig and *B.* sp.

***Calinda trinervis* sp. n.**

(Figs 16c, 19u, 23a, 25c, d, 43g)

Trioza sp. A, Brown & Hodkinson, 1988: 228.

Holotype ♂, Costa Rica: San José, Zurquí de Moravia, 1600 m, iii.1994, Malaise trap (P. Hansen), dry mounted (BMNH).

Paratypes. Costa Rica: Cartago Province: 10 ♂, 12 ♀, Route 2, 5-10 km S Cartago, 27.ii.1989, *Baccharis trinervis* (D. Hollis); 1 ♂, 2 ♀, 6 km S Guatuso, 30.i.1991, *Baccharis trinervis* (D. Hollis); - San José Province: 4 ♂, 1 ♀, 19km S, 3 km W Empalme, 2600 m, iii-vii.1992, Malaise trap (P. Hansen); 1 ♂, Empalme to Santa Maria de Dota road, 2000 m, 11.iv.1992, *Baccharis trinervis* (D. Hollis); 3 ♂, 3 ♀, Zurquí de Moravia, 1600 m, 16.iii.-3.iv.1991, *Baccharis trinervis* (D. Hollis); 1 ♂, 3 ♀, same data as holotype but iii-iv.1991; 2 ♂, 1 ♀, same data but iii-iv.1993; 2 ♂, same data but iv-v.1993; 2 ♀, same data but ii.1994; 1 ♂, 1 ♀, same data but iii.1994; 2 ♂, same data but iv.1994; 1 ♂, 2 ♀, same data but ii.1995; 1 ♂, same data but iii.1995; dry and slide mounted (BMNH).

Distribution. Reported as *Trioza* sp. A. from Panama (Chiriquí) (BROWN & HODKINSON 1988), Costa Rica (Cartago and San José Provinces) (present data).

Description. Adult. Male. Head and thorax ochreous, mesopraescutum with brown patches, mesoscutum with light brown patches. Antennal segments 1-5 ochreous, 6-10 dark brown. Abdomen brown with light intersegmental membranes. Paramere brown apically. Legs ochreous. Forewing transparent with brown veins. Female. Head ochreous. Antennal segments 1-4 brownish ochreous, 5-10 light brown. Thorax ochreous, mesopraescutum with brown patches, mesoscutum with light brown stripes. Abdomen brown, genitalia ochreous, intersegmental membranes light. Legs ochreous. Forewing transparent with brown veins.

Forewing subacute apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae shorter than distance between them. Surface spinules absent apart from base of cell cu₂; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, slender, tubular, with short apical process. Paramere shorter than proctiger, narrow, curved forward apically forming heavily sclerotised tooth, with flat subapical lobe along the outer foremargin, medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal tooth which is

close to shaft. Female proctiger longer than four times circumanal ring length, truncate apically, without dorsal teeth apically; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate angled medially. Valvula dorsalis short, triangular. Valvula ventralis long, truncate apically.

Measurements: ♂ (1): HW 0.51; AL 1.15; ALHW 2.55; L3/L4 1.79; LLHW 0.55; TLHW 1.14; WL 2.99; WLHW 5.86; WLW 2.64; a/b 1.39; c/d 2.19; MP 0.34; MPH 0.67; PL 0.41; AEL 0.32. ♀ (1): HW 0.55; AL 1.25; ALHW 2.27; L3/L4 1.59; LLHW 0.75; TLHW 1.13; WL 3.28; WLHW 5.96; WLW 2.69; a/b 1.34; c/d 2.11; FP 0.93; FPHW 1.69; FPC 3.88; FSP 1.33.

Larva unknown.

Host-plant. Adults were collected on *Baccharis trinervis* (Lam.) Pers.

Calinda tuthilli sp. n.

(Figs 13i, 19b, 21i, 41i)

Holotype ♂, Peru: Lima, Rimac Valley, km 115, 19.xii.1958 (L. D. Tuthill), slide mounted (USNM).

Paratype. Peru: 1 ♂, Cajamarca, 1 mi. SW of town, 8000 ft, 26.viii.1971, shrubs on hillside, fertile Valley in Andes (P. S. & H. L. Broomfield), B.M.1971-486, slide mounted (BMNH).

Distribution. Peru (Cajamarca, Lima).

Description. Adult. Male. Head and thorax ochreous, mesopraescutum and mesoscutum with light brownish stripes, abdomen and genitalia ochreous. Antennal segments 1-5 ochreous, 6-10 dark brown. Forewing transparent with brown veins.

Forewing subacute to narrowly rounded apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules absent except for base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with short setae. Male proctiger, in profile, thick, hindmargin strongly produced in basal two thirds, with long apical process though less than half as long as proctiger wide. Paramere as long as proctiger, narrow, subacute apically with sclerotised tooth, medial constriction absent; entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate.

Measurements: ♂ (2): HW 0.54-0.55; AL -; ALHW -; L3/L4 1.90-2.07; LLHW 0.62, TLHW 0.94-1.00; WL 2.39-3.15; WLHW 4.43-5.73; WLW 2.57-2.86; a/b 1.49-1.59; c/d 1.34-1.70; MP 0.32-0.36; MPH 0.59-0.65; PL 0.32-0.36; AEL 0.18-0.20.

Female, larva and host-plant unknown.

Calinda velardei (Tuthill), comb. n.

(Figs 13g, 19a, 21g, 25a, b, 41g)

Trioza velardei Tuthill, 1959: 23. Holotype ♂, Peru: Huánuco, Tulca, above Acomayo, 30.xii.1958, *Baccharis humifusa* (L. D. Tuthill) (USNM) (examined).

Material examined. Peru: holotype ♂, 16 paratypes, Huánuco, Tulca, above Acomayo, 30.xii.1958, *Baccharis humifusa* (L. D. Tuthill); dry and slide mounted (USNM).

Distribution. Peru (Huánuco) (TUTHILL 1959; HODKINSON & WHITE 1981).

Description. Adult. Head and thorax ochreous, mesopraescutum, mesoscutum, mesoscutellum and metascutellum with reddish brown patches. Antennal segments 1-5 ochreous, 6-10 dark brown. Legs ochreous. Forewing brownish with ochreous veins.

Forewing subacute apically; vein Rs weakly sinuous; costal setae shorter than distance between them. Surface spinules covering entire surface of wing, except for narrow stripes along the veins; radular spinules forming indistinct patches. Mesonotum with short setae. Male proctiger, in profile, thick, tubular, with short apical process less than half as long as proctiger wide, hindmargin moderately produced. Paramere shorter than proctiger, narrow, subacute apically with sclerotised hook, medial constriction absent; inner surface covered in setae in apical half. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is distant from shaft. Female proctiger longer than four times circumanal ring length; upturned and pointed apically; dorsal margin without teeth; peg setae dense, present only laterally, regularly spaced. Circumanal ring not extended distally. Ventral margin of female subgenital plate shallowly angular in the middle. Valvula dorsalis short, triangular. Valvula ventralis long, truncate apically.

Measurements ♂ (1): HW 0.47; AL -; ALHW -; L3/L4 2.00; LLHW -; TLHW 1.00; WL 2.26; WLHW 4.81; WLW 2.76; a/b 1.66; c/d 1.35; MP 0.30; MPH 0.64; PL 0.28; AEL 0.27. ♀ (1): HW 0.52; AL -; ALHW -; L3/L4 2.50; LLHW 0.67; TLHW 1.04; WL 2.79; WLHW 5.37; WLW 2.74; a/b 1.70; c/d 1.79; FP 1.16; FPHW 2.23; FPC 6.82; FSP 1.33.

Larva unknown.

Host-plant. Adults were collected on *Baccharis humifusa* H. B. K.

Calinda yungas sp. n.

(Figs 15g, 19p, 22l, 43b)

Holotype ♂, Ecuador: Napo, Papallacta, 4100 m, 24.ii.1983 (L. Huggert), slide mounted (MZLU).

Distribution. Ecuador (Napo).

Description. Adult. Male. Head brownish yellow, pronotum ochreous with black stripes laterally, mesopraescutum dark brown with posterior half of median portion yellow, mesoscutum and mesoscutellum ochreous. Antennal segments 1-2 brownish ochreous, 3-10 dark brown. Abdomen ochreous, apices of paramere and proctiger dark brown. Legs ochreous with brown patches. Forewing transparent with brown veins.

Forewing rounded apically; vein Rs in the middle shallowly and evenly curved toward foremargin; costal setae as long as distance between them. Surface spinules absent apart from base of cell cu_2 ; radular spinules forming well-defined, wide triangles. Mesonotum with long setae. Male proctiger, in profile, thick, tubular, without apical process, hindmargin almost straight. Paramere as long as proctiger, wide, truncate apically with two apical sclerotised teeth, medial constriction weak;

entire inner surface covered in setae. Apical dilatation of distal segment of aedeagus elongate with ventro-basal hook which is close to shaft.

Measurements: ♂ (1): HW 0.59; AL 2.05; ALHW 3.47; L3/L4 1.27; LLHW 1.00; TLHW 1.53; WL 3.48; WLHW 5.90; WLW 2.30; a/b 1.27; c/d 1.59; MP 0.37; MPH 0.63; PL 0.38; AEL 0.43.

Female, larva and host-plant unknown.

NON IDENTIFIED MATERIAL

The following specimens could not be identified due to insufficient material. They are grouped according to country of provenience. This material suggests that many additional species are to be expected and that more field work should be done.

ARGENTINA

Calinda sp. 1

1 ♂, Jujuy, Rt 9, Volcán, 5.ii.1990, *Baccharis salicifolia* (P. E. Boldt), dry mounted (MHNG).

Comments. The single ♂ at hand resembles *C. peruana*.

CHILE

Calinda sp.

Comments. RÜBSAAMEN (1899) reported a psylloid gall on *Senecio falklandicus* (a likely misidentification) from Chile: Punta Arenas, and described the larva. The species resembles closely *C. patagonica*, but differs in the longer setosity and larger legs.

COLOMBIA

Calinda sp. 1

1 ♂, 1 ♀, iii.1911, dry and slide mounted (USNM).

Calinda sp. 2

2 ♀, Boyaca, Sogamoso, 29.v.1946 (E. A. Chapin), Sta 26-23, dry mounted (USNM).

ECUADOR

Calinda sp. 1

1 ♂, Napo, Papallacta, 24.ii.1983 (L. Huggert), dry mounted (MZLU).

Calinda sp. 1

3 ♂, Chillacocha, 2900 m, ii.1905 (P. Rivet), dry mounted (MNHN).

Comments. Listed as *T. testacea* Form a by BURCKHARDT (1988).

PERU

Calinda sp. 1

1 ♀, near Ambo, 27.xii.1958 (L. D. Tuthill), slide mounted (USNM).

U.S.A.

Calinda sp. 1

2 larvae, Arizona, Cochise County, Huachuca Mts, Coronado National Memorial, 14.vii.1988, *Baccharis bigelovii* (T. O. Robbins), slide mounted (MHNG).

Comments. The two specimens at hand are fourth instar larvae. They differ from fifth instar larvae of *C. longistylus* in the slightly larger circumanal ring. Additional material is necessary to decide whether this is a different species.

VENEZUELA

Calinda sp. 1

1 ♀, Mérida, Mucuchíes, 31.viii.1979, *Pisum sativa* (M. Cermeli), dry mounted (IZAV).

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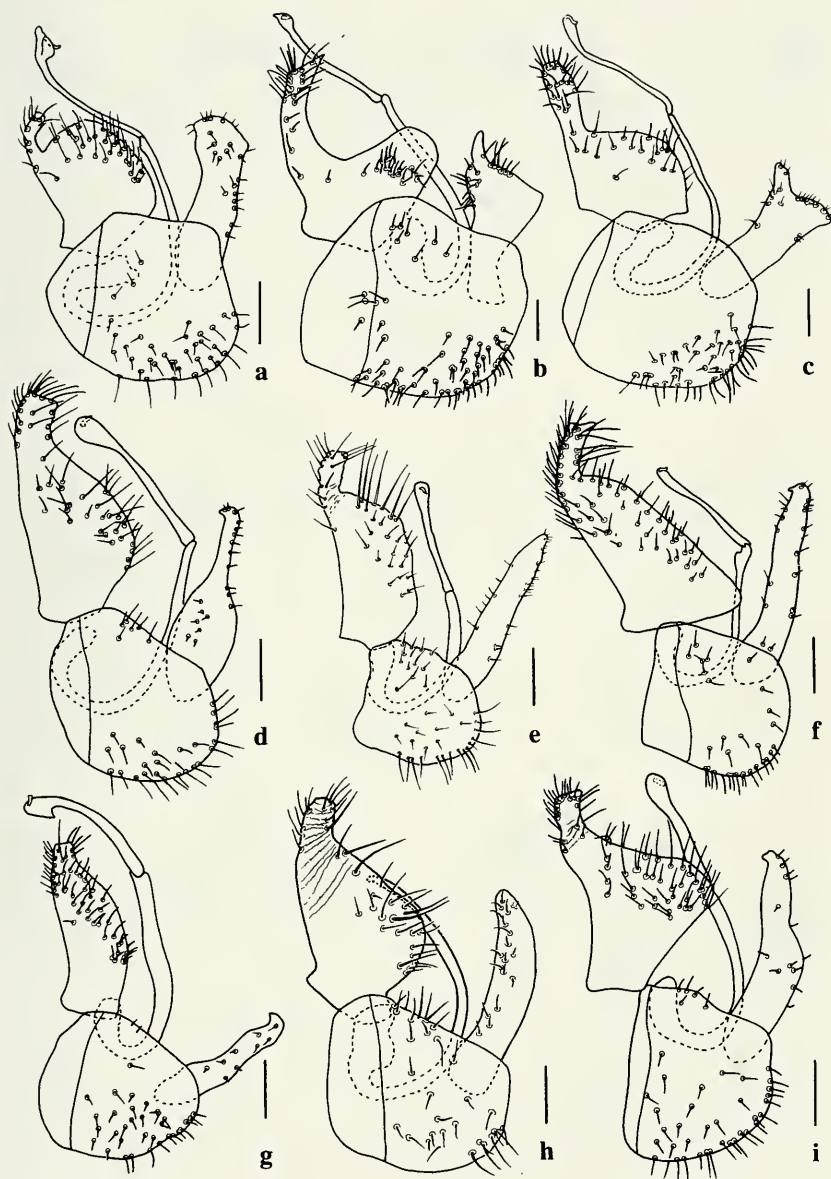


FIG. 13

Calinda spp., male genitalia, in profile. a: *C. broomfieldi* sp. n.; b: *C. magniforceps* (Tuthill); c: *C. peruana* (Tuthill); d: *C. osorii* sp. n.; e: *C. salicifoliae* sp. n.; f: *C. baccharidis* (Tuthill); g: *C. velardei* (Tuthill); h: *C. proximata* (Crawford); i: *C. tuthilli* sp. n.; scale lines = 0.1 mm.

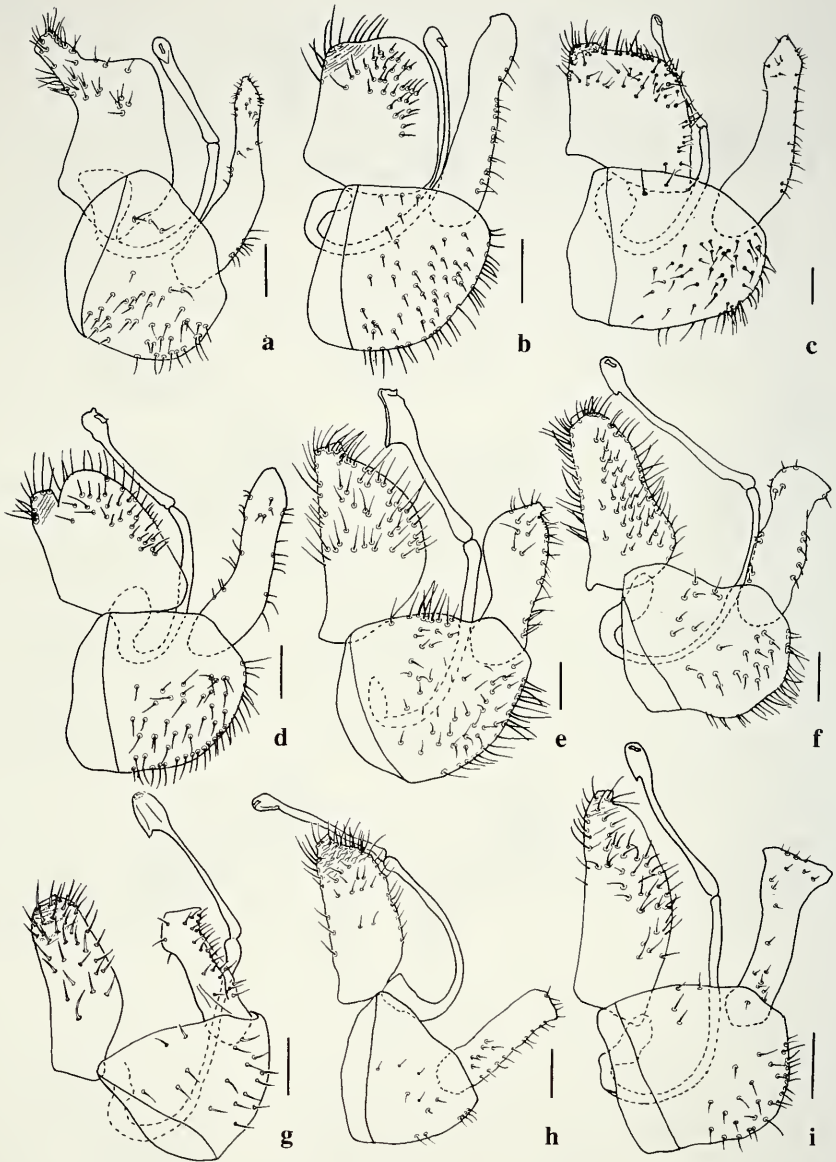


FIG. 14

Calinda spp., male genitalia, in profile. a: *C. jibara* sp. n.; b: *C. albonigra* sp. n.; c: *C. penai* sp. n.; d: *C. gibbosa* (Tuthill); e: *C. spatulata* sp. n.; f: *C. huggerti* sp. n.; g, h: *C. peterseni* sp. n.; i: *C. aguilari* (Tuthill); scale lines = 0.1 mm.

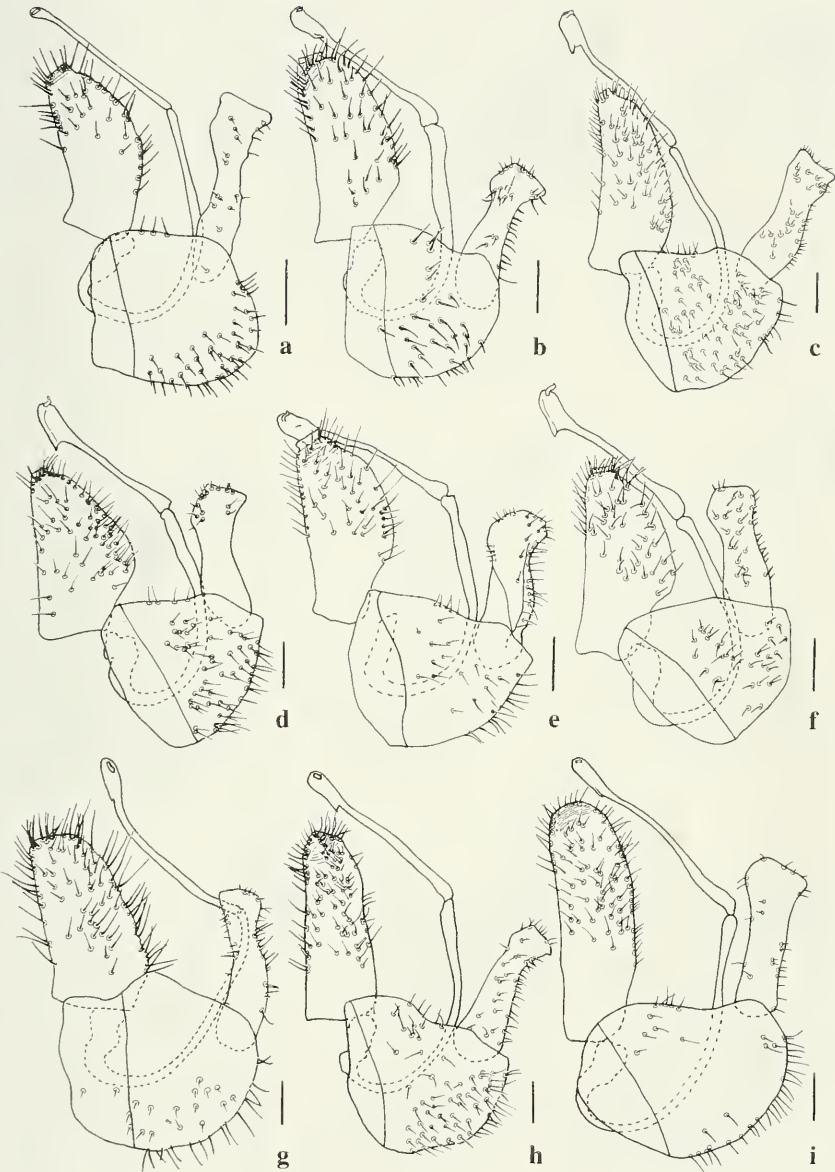


FIG. 15

Calinda spp., male genitalia, in profile. a: *C. inca* sp. n.; b: *C. parviceps* (Tuthill); c: *C. hodkinsoni* sp. n.; d: *C. chionophili* sp. n.; e: *C. patagonica* sp. n.; f: *C. reversyi* sp. n.; g: *C. yungas* sp. n.; h: *C. microcephala* sp. n.; i: *C. otavalo* sp. n.; scale lines = 0.1 mm.

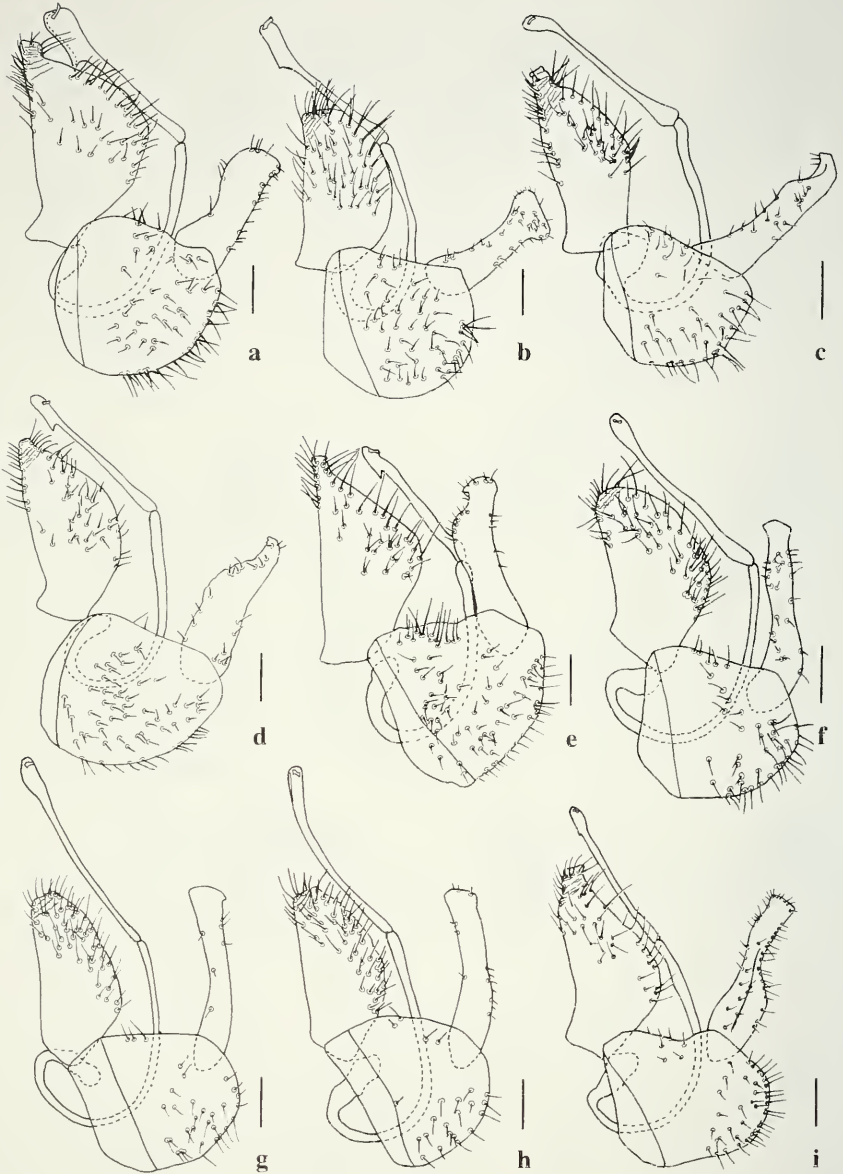


FIG. 16

Calinda spp., male genitalia, in profile. a: *C. brevicanda* sp. n.; b: *C. panamensis* (Brown & Hodkinson); c: *C. trinervis* sp. n.; d: *C. longicollis* sp. n.; e: *C. falciforceps* sp. n.; f: *C. arancaua* sp. n.; g: *C. ambigua* sp. n.; h: *C. boldti* sp. n.; i: *C. pehmenche* sp. n.; scale lines = 0.1 mm.

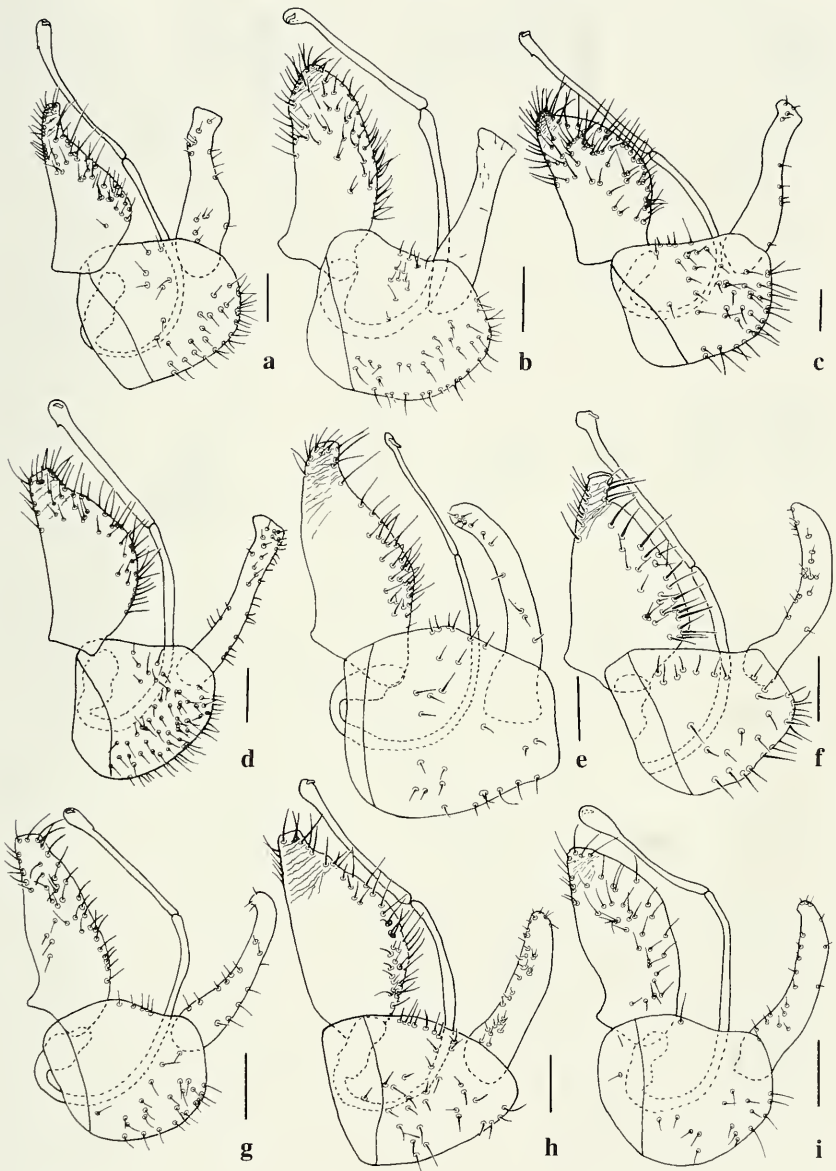


FIG. 17

Calinda spp., male genitalia, in profile. a: *C. mendocina* (Kieffer & Jörgensen); b: *C. hollisi* sp. n.; c: *C. antucana* sp. n.; d: *C. testacea* Blanchard; e: *C. graciliforceps* sp. n.; f: *C. longicaudata* sp. n.; g: *C. plaumanni* sp. n.; h: *C. collaris* (Crawford); i: *C. branisai* sp. n.; scale lines = 0.1 mm.

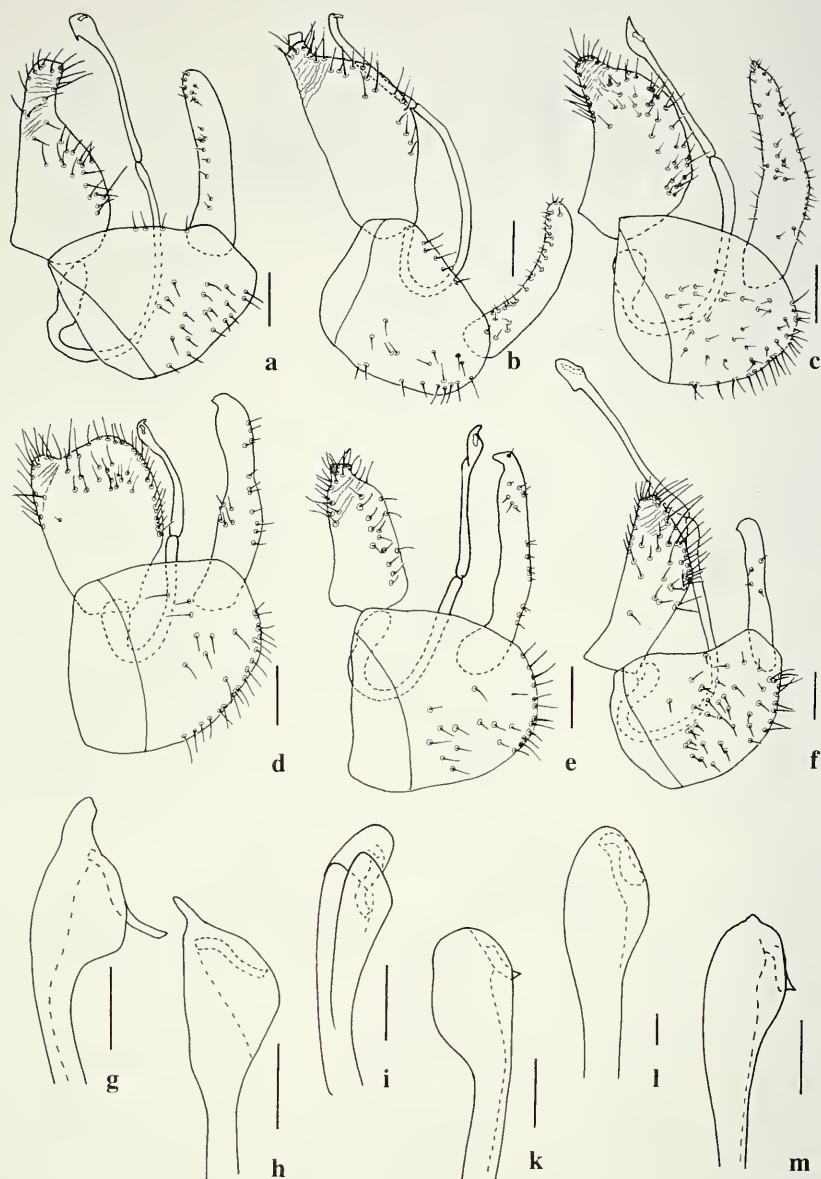


FIG. 18

Caliuda spp. a-f: male genitalia, in profile. scale lines = 0.1 mm; g-m: apical dilatation of distal segment of aedeagus, scale lines = 0.03 mm. a: *C. longistylus* (Crawford); b: *C. funipennis* sp. n.; c: *C. gladiformis* sp. n.; d: *C. sinoui* (Tuthill); e: *C. beingoleai* (Tuthill); f: *C. muscas* sp. n.; g: *C. brooufieldi* sp. n.; h: *C. uaguiforceps* (Tuthill); i: *C. periana* (Tuthill); k: *C. osorii* sp. n.; l: *C. salicifoliae* sp. n.; m: *C. baccharidis* (Tuthill).

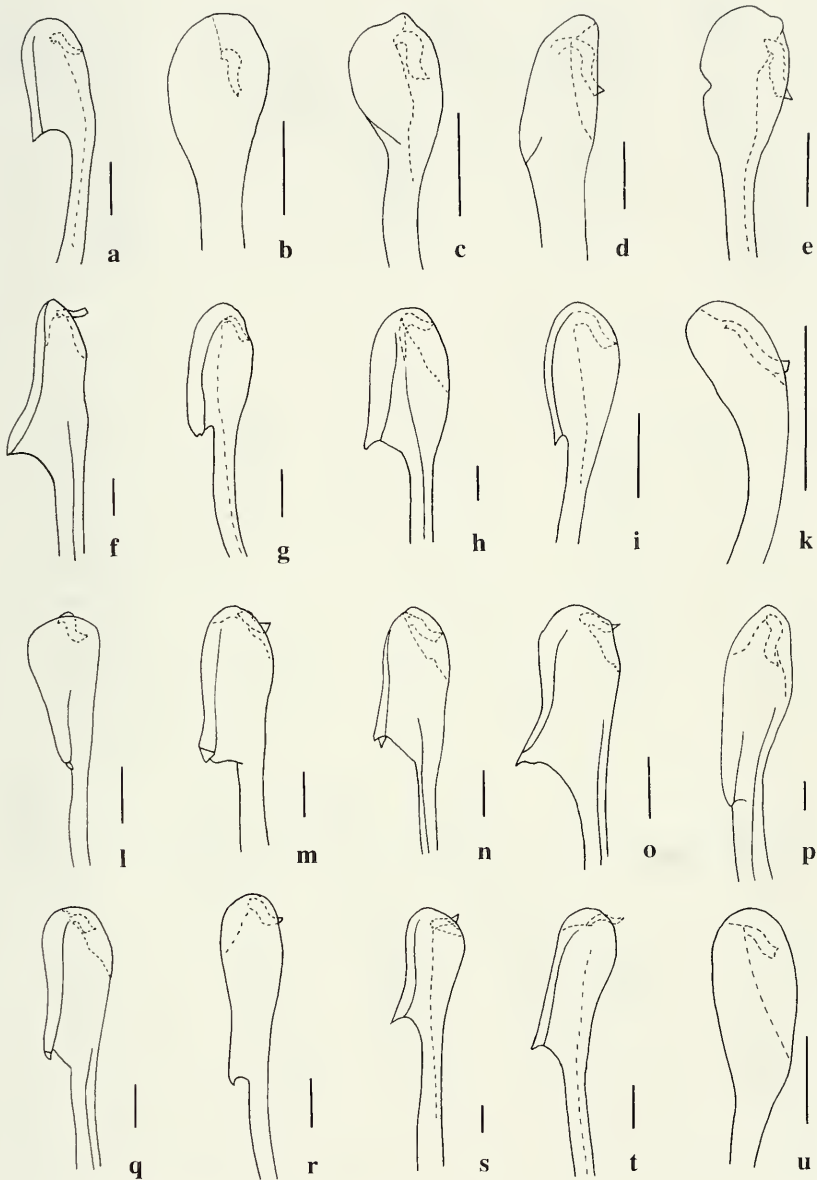


FIG. 19

Calinda spp., apical dilatation of distal segment of aedeagus. a: *C. velardei* (Tuthill); b: *C. tuthilli* sp. n.; c: *C. albouigra* sp. n.; d: *C. penai* sp. n.; e: *C. gibbosa* (Tuthill); f: *C. spatulata* sp. n.; g: *C. huggerti* sp. n.; h: *C. peterseni* sp. n.; i: *C. aguilari* (Tuthill); k: *C. inca* sp. n.; l: *C. parviceps* (Tuthill); m: *C. hodkinsoni* sp. n.; n: *C. chionophili* sp. n.; o: *C. patagonica* sp. n.; p: *C. yungas* sp. n.; q: *C. microcephala* sp. n.; r: *C. otavalo* sp. n.; s: *C. brevicauda* sp. n.; t: *C. panamensis* (Brown & Hodkinson); u: *C. trinervis* sp. n.; scale lines = 0.03 mm.

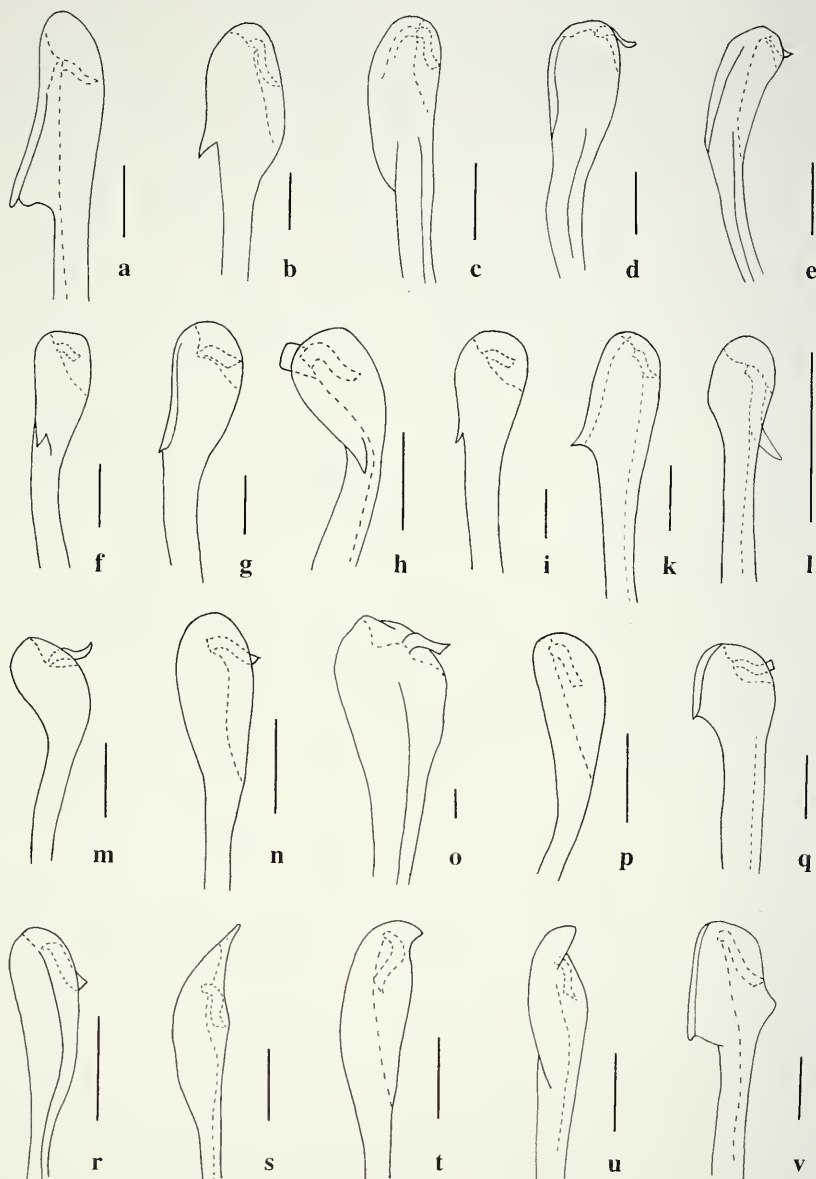


FIG. 20

Calinda spp., apical dilatation of distal segment of aedeagus. a: *C. longicollis* sp. n.; b: *C. falciforceps* sp. n.; c: *C. arancana* sp. n.; d: *C. ambigua* sp. n.; e: *C. boldti* sp. n.; f: *C. pehuenche* sp. n.; g: *C. mendocina* (Kieffer & Jörgensen); h: *C. hollisi* sp. n.; i: *C. antucana* sp. n.; k: *C. testacea* Blanchard; l: *C. graciliforceps* sp. n.; m: *C. longicandata* sp. n.; n: *C. planmanni* sp. n.; o: *C. collaris* (Crawford); p: *C. branisai* sp. n.; q: *C. longistylus* (Crawford); r: *C. fimmipennis* sp. n.; s: *C. gladiformis* sp. n.; t: *C. simoni* (Tuthill); u: *C. beingoleai* (Tuthill); v: *C. mniscas* sp. n.; scale lines = 0.03 mm.

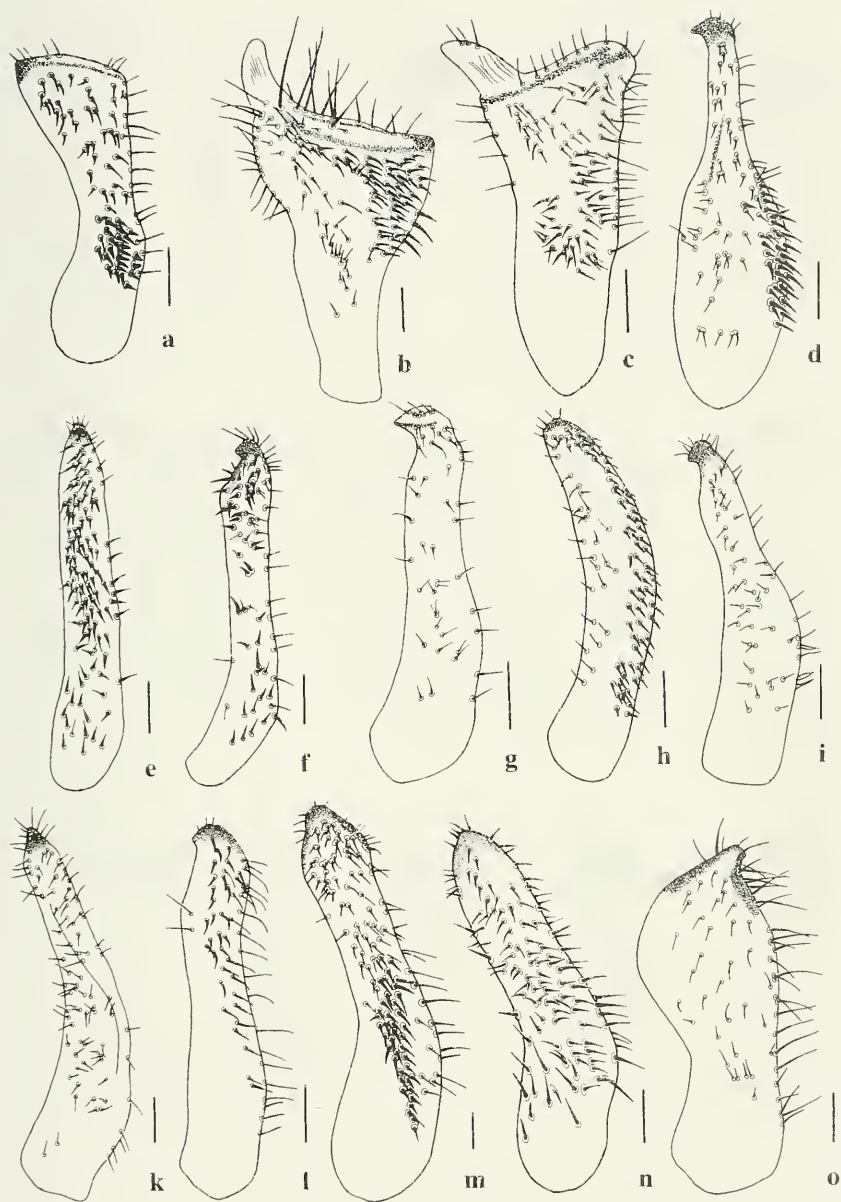


FIG. 21

Calinda spp., paramere, inner face. a: *C. broomfieldi* sp. n.; b: *C. magniforceps* (Tuthill); c: *C. peruana* (Tuthill); d: *C. osorii* sp. n.; e: *C. salicifoliae* sp. n.; f: *C. baccharidis* (Tuthill); g: *C. velardei* (Tuthill); h: *C. proxinata* (Crawford); i: *C. tutuilli* sp. n.; k: *C. jibara* sp. n.; l: *C. albougra* sp. n.; m: *C. peuai* sp. n.; n: *C. gibbosa* (Tuthill); o: *C. spatulata* sp. n.; scale lines = 0.05 mm.

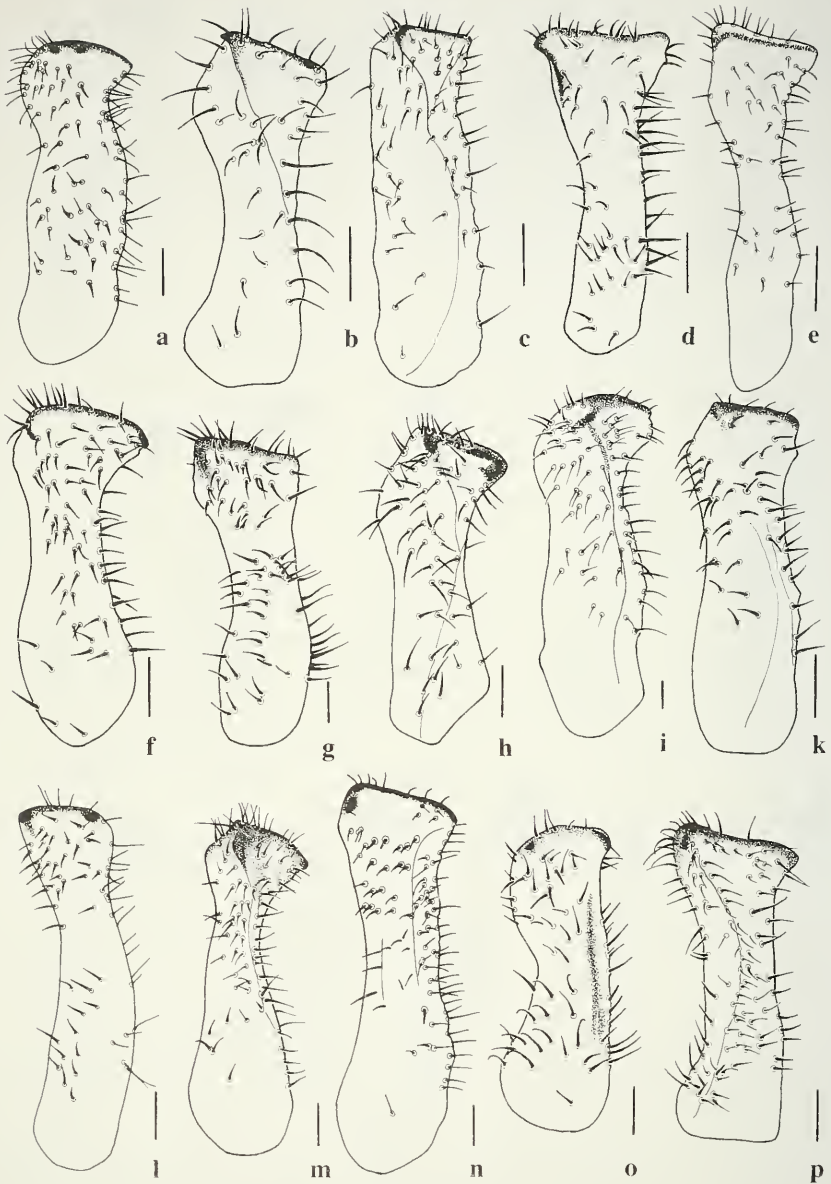


FIG. 22

Calinda spp., paramere, inner face. a: *C. huggerti* sp. n.; b, c: *C. peterseni* sp. n.; d: *C. aguilar* (Tuthill); e: *C. inca* sp. n.; f: *C. parviceps* (Tuthill); g: *C. hodkinsoni* sp. n.; h: *C. chionophili* sp. n.; i: *C. patagonica* sp. n.; k: *C. reversyi* sp. n.; l: *C. yungas* sp. n.; m: *C. microcephala* sp. n.; n: *C. otavalo* sp. n.; o: *C. brevicauda* sp. n.; p: *C. panamensis* (Brown & Hodkinson); scale lines = 0.05 mm.



FIG. 23

Calinda spp., paramere, inner face. a: *C. trinervis* sp. n.; b: *C. lougicollis* sp. n.; c: *C. falciforceps* sp. n.; d, e: *C. araucana* sp. n.; f-i: *C. ambigua* sp. n.; k, l: *C. boldti* sp. n.; m: *C. pehuenche* sp. n.; n: *C. mendocina* (Kieffer & Jörgensen); o: *C. hollisi* sp. n.; p: *C. anticauca* sp. n.; q: *C. testacea* Blanchard; scale lines = 0.05 mm.

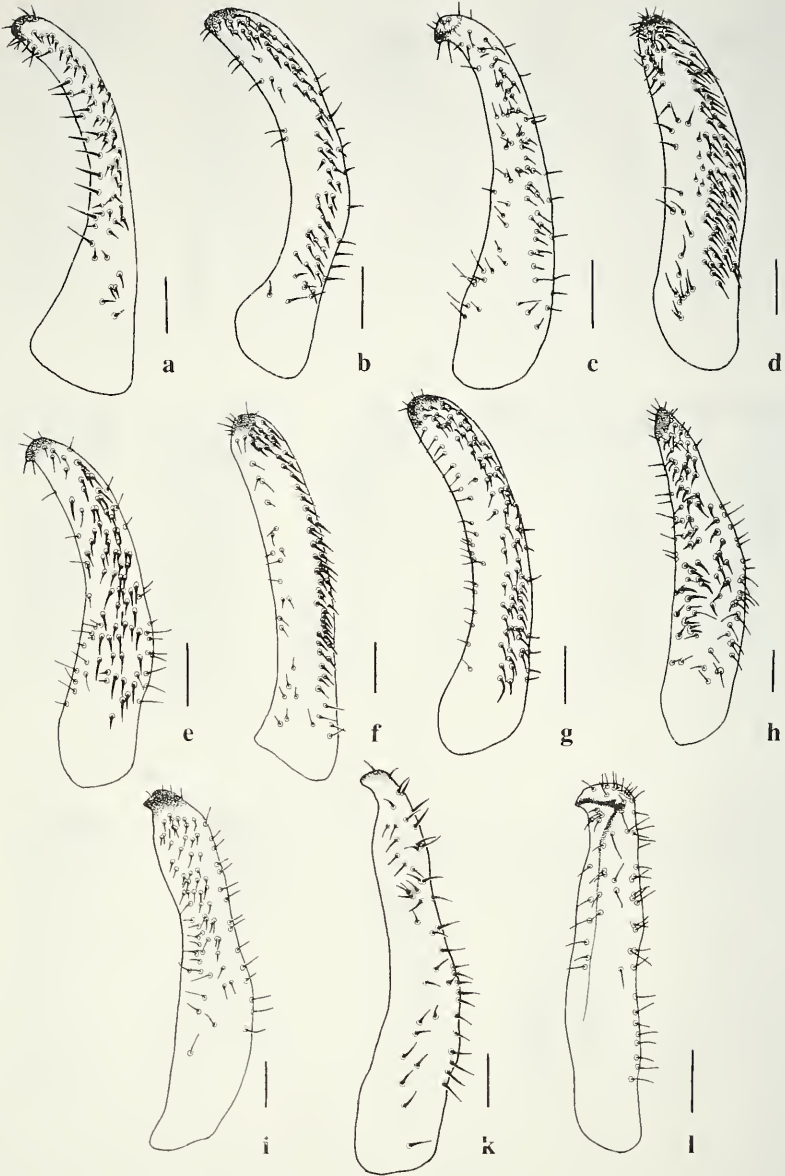


FIG. 24

Caliuda spp., paramere, inner face. a: *C. graciliforceps* sp. n.; b: *C. longicaudata* sp. n.; c: *C. plaunauui* sp. n.; d: *C. collaris* (Crawford); e: *C. brauisai* sp. n.; f: *C. longistylus* (Crawford); g: *C. funipennis* sp. n.; h: *C. gladiformis* sp. n.; i: *C. siuoni* (Tuthill); k: *C. beingoleai* (Tuthill); l: *C. uniscas* sp. n.; scale lines = 0.05 mm.

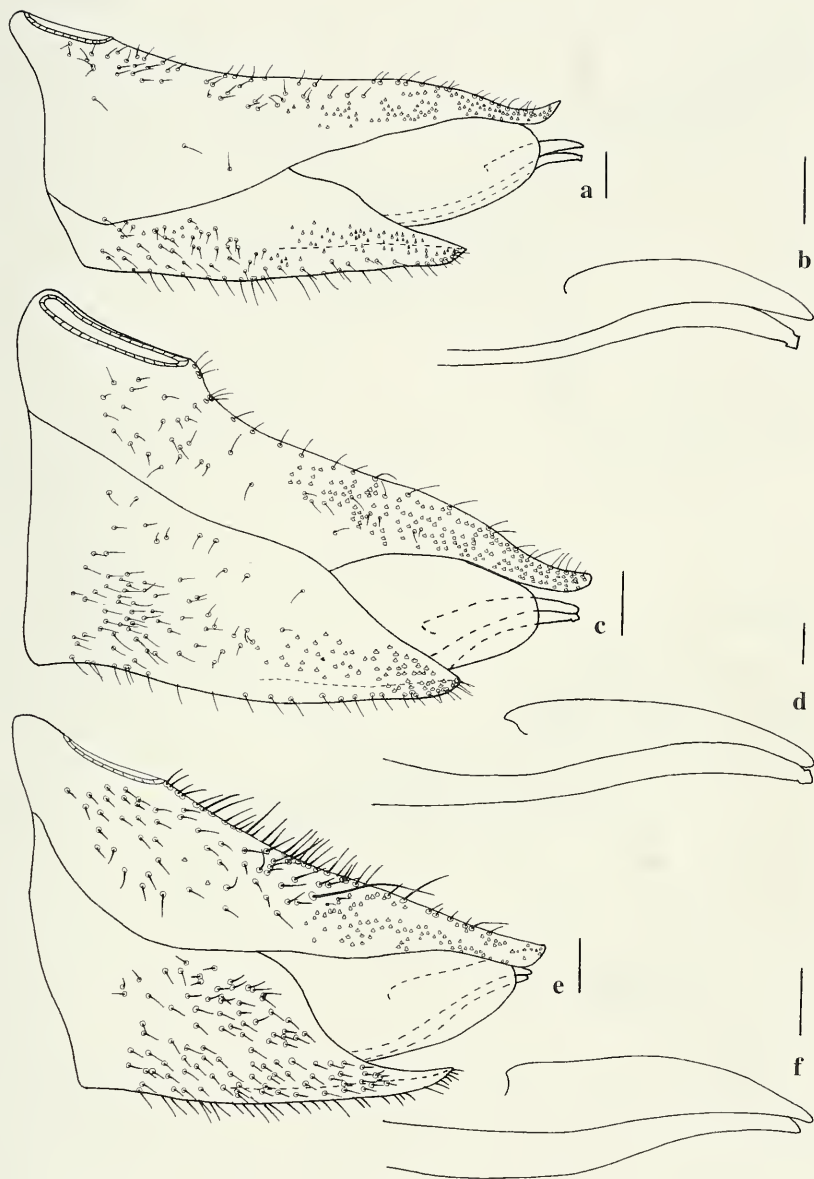


FIG. 25

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, f: valvulae dorsalis and ventralis; scale lines = 0.05 mm. a, b: *C. velardei* (Tuthill); c, d: *C. trinervis* sp. n.; e, f: *C. longicollis* sp. n.

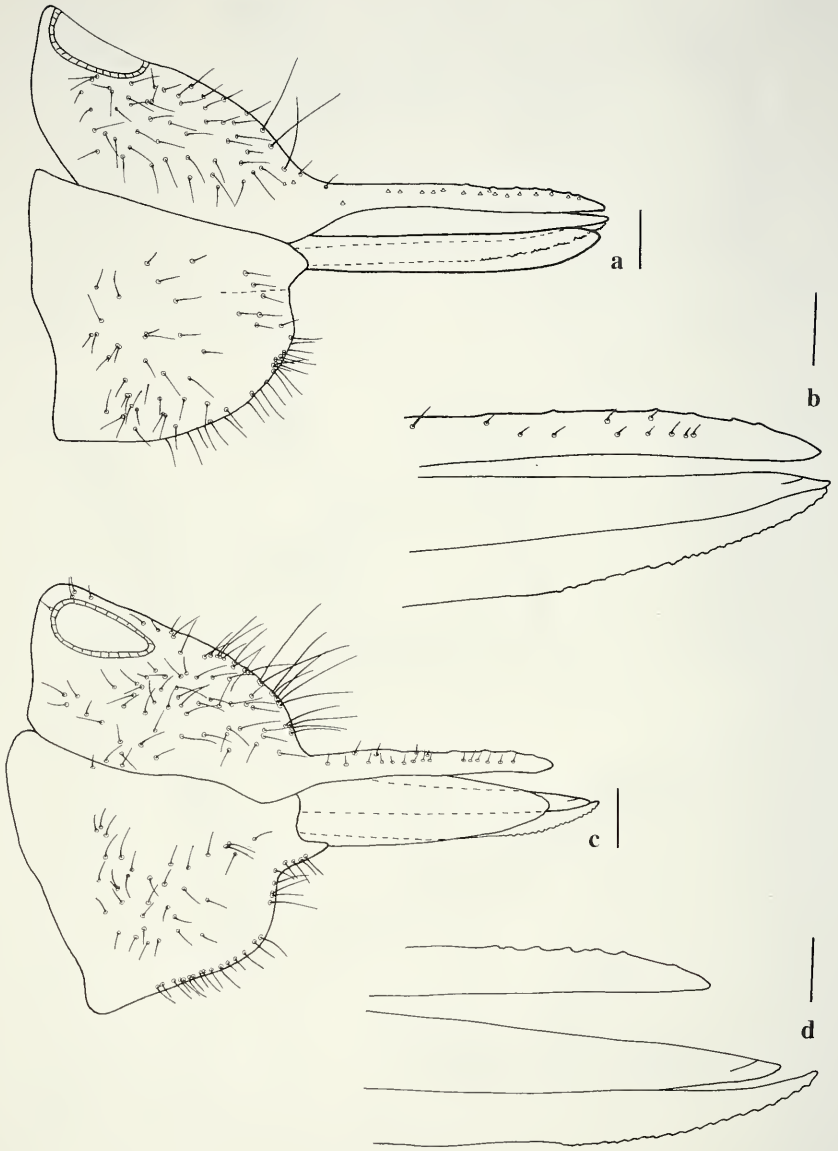


FIG. 26

Calinda spp. a, c: female genitalia, in profile; scale lines = 0.1 mm; b, d: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. magniforceps* (Tuthill); c, d: *C. peruana* (Tuthill).

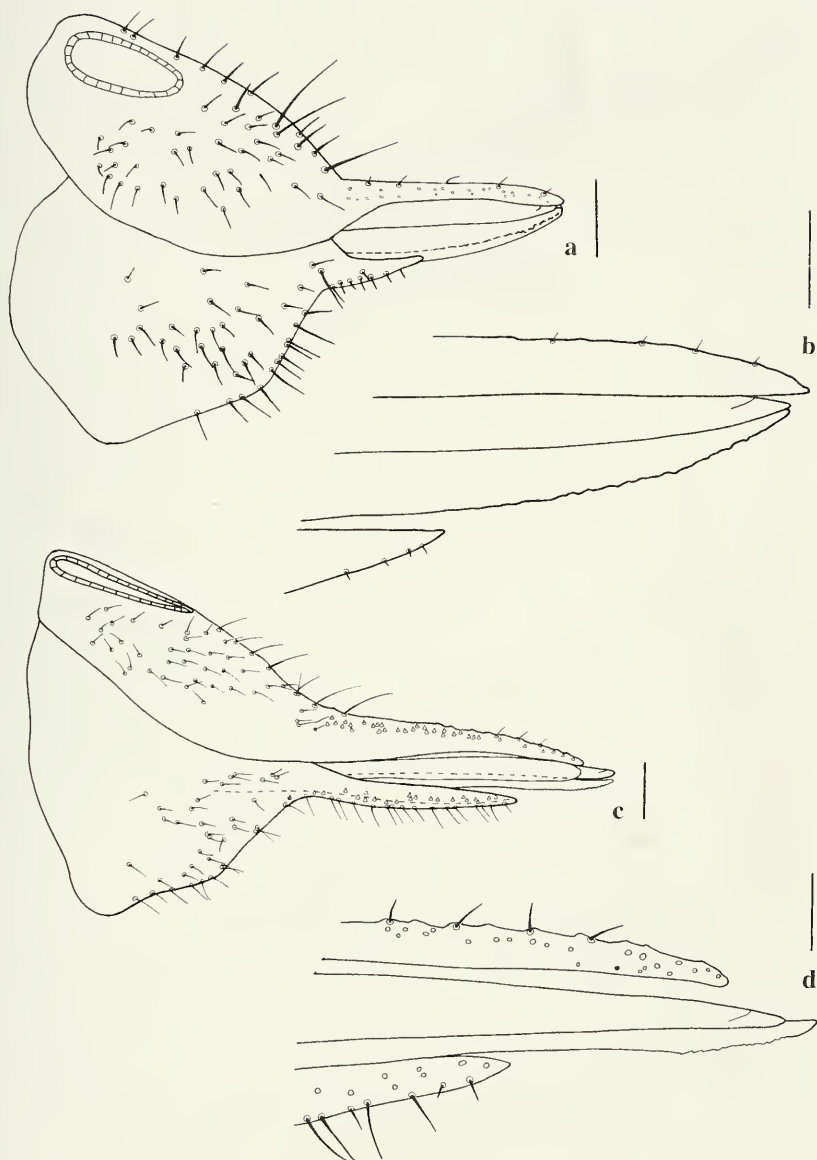


FIG. 27

Calinda spp. a, c: female genitalia, in profile; scale lines = 0.1 mm; b, d: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. broomfieldi* sp. n.; c, d: *C. huggerti* sp. n.

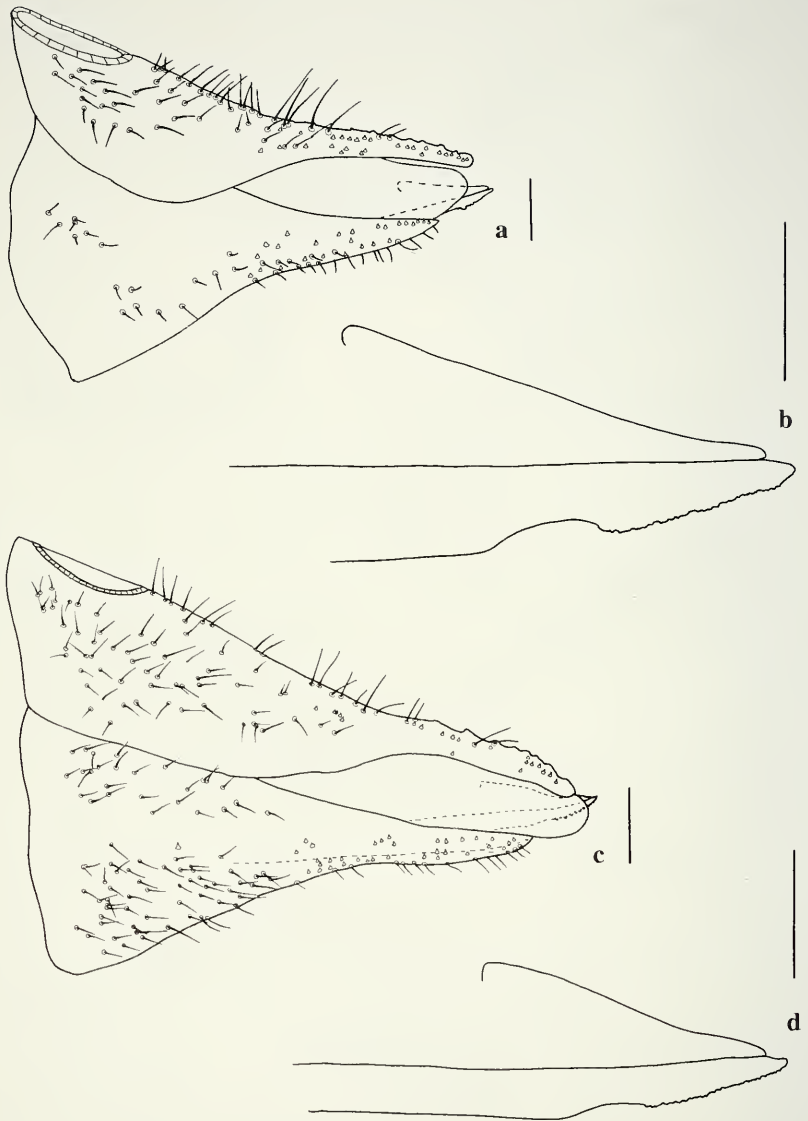


FIG. 28

Calinda spp. a, c: female genitalia, in profile, scale lines = 0.1 mm; b, d: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. peterseni* sp. n.; c, d: *C. patagonica* sp. n.

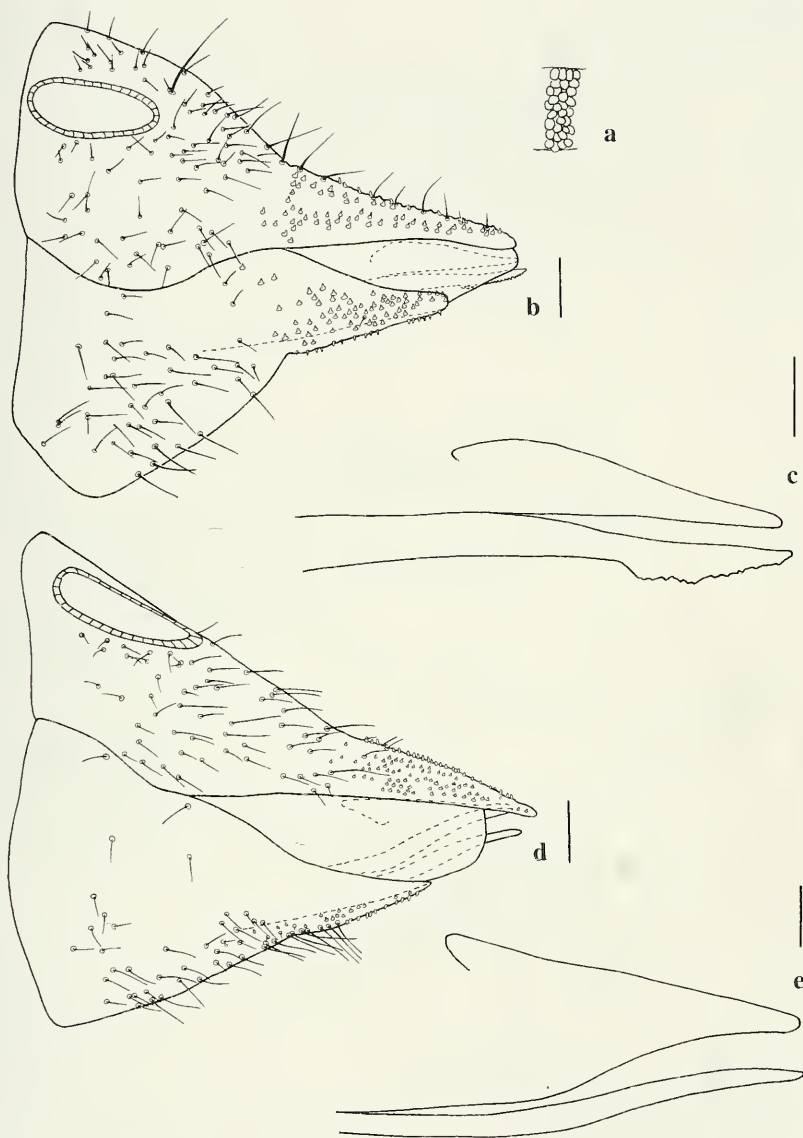


FIG. 29

Calinda spp. a: section of female circumanal ring; b, d: female genitalia, in profile. scale lines = 0.1 mm; c, e: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a-c: *C. chionophili* sp. n.; d, e: *C. brevicauda* sp. n.

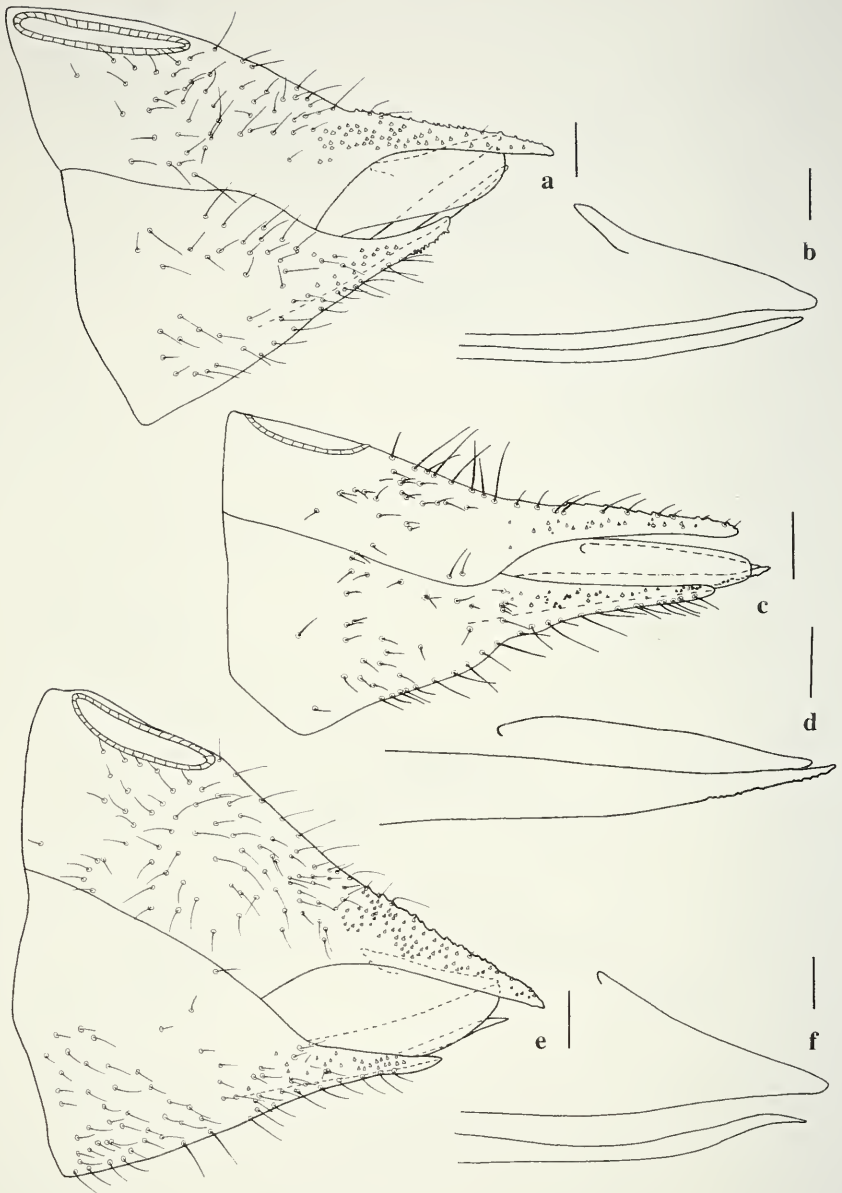


FIG. 30

Calinda spp., a, c, e: female genitalia, in profile. Scale lines = 0.1 mm, b, d, f: valvulae dorsalis and ventralis Scale lines = 0.05 mm. a, b: *C. falciforceps* sp. n.; c, d: *C. panamaensis* (Brown & Hodkinson); e, f: *C. spatulata* sp. n.

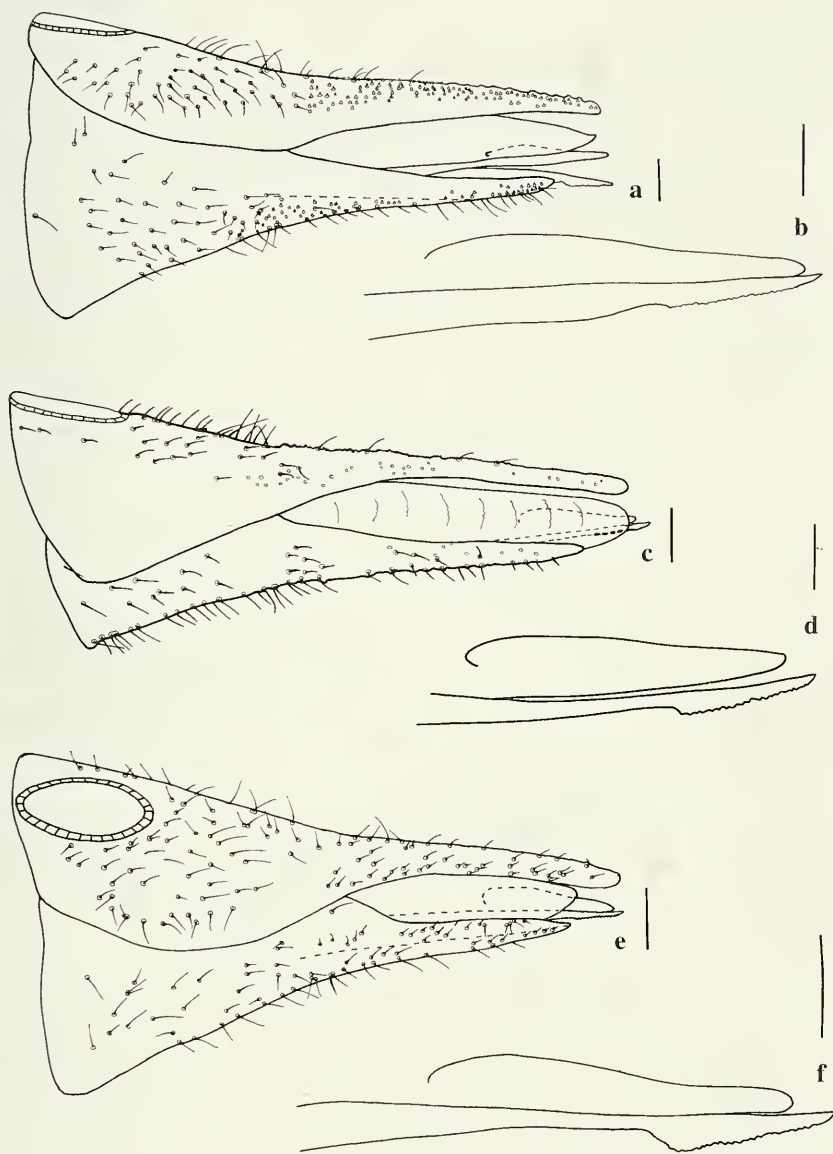


FIG. 31

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, f: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. otavalo* sp. n.; c, d: *C. microcephala* sp. n.; e, f: *C. parviceps* (Tuthill).

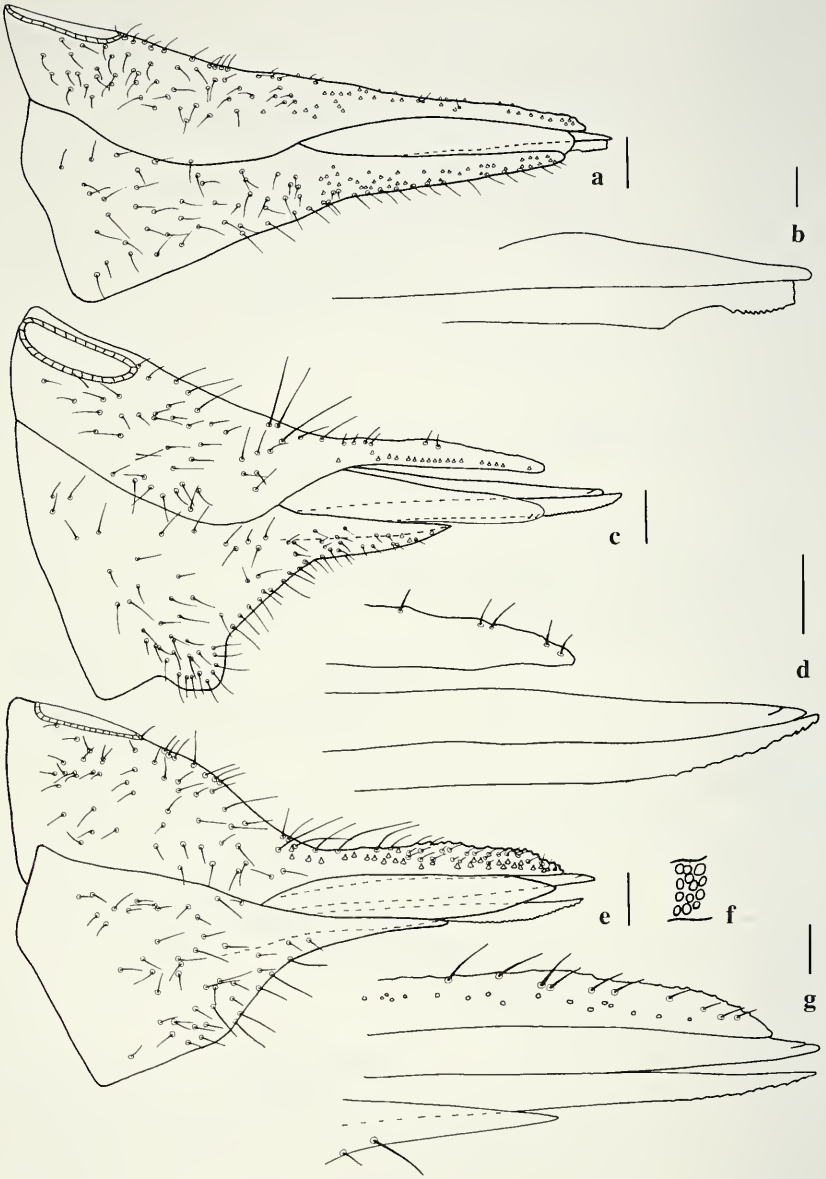


FIG. 32

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, g: valvulae dorsalis and ventralis, scale lines = 0.05 mm; f: section of female circumanal ring. a, b: *C. hodkinsoni* sp. n.; c, d: *C. gibbosa* (Tuthill); e-g: *C. antucana* sp. n.

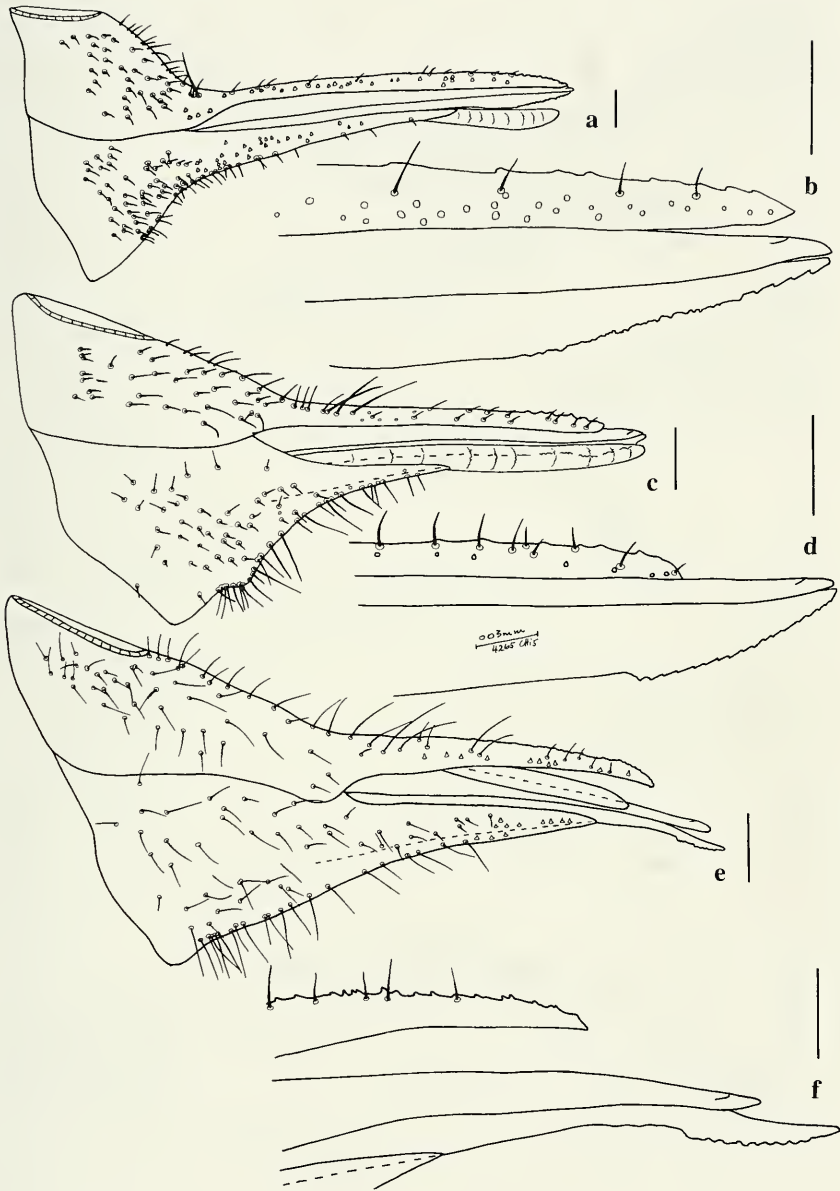


FIG. 33

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, f: valvulae dorsalis and ventralis. scale lines = 0.05 mm. a, b: *C. gladiformis* sp. n.; c, d: *C. araucana* sp. n.; e, f: *C. baccharidis* (Tuthill).

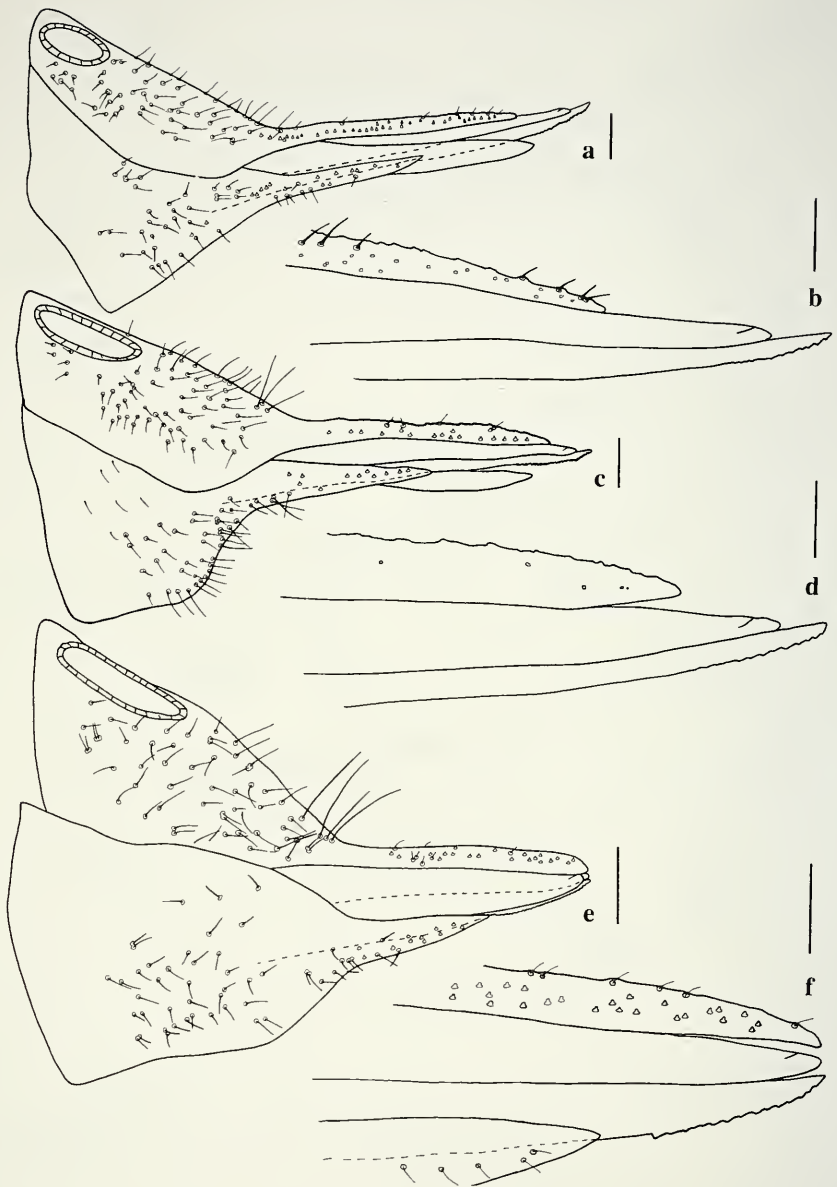


FIG. 34

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, f: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. beingoleai* (Tuthill); c, d: *C. albonigra* sp. n.; e, f: *C. mendocina* (Kieffer & Jörgensen).

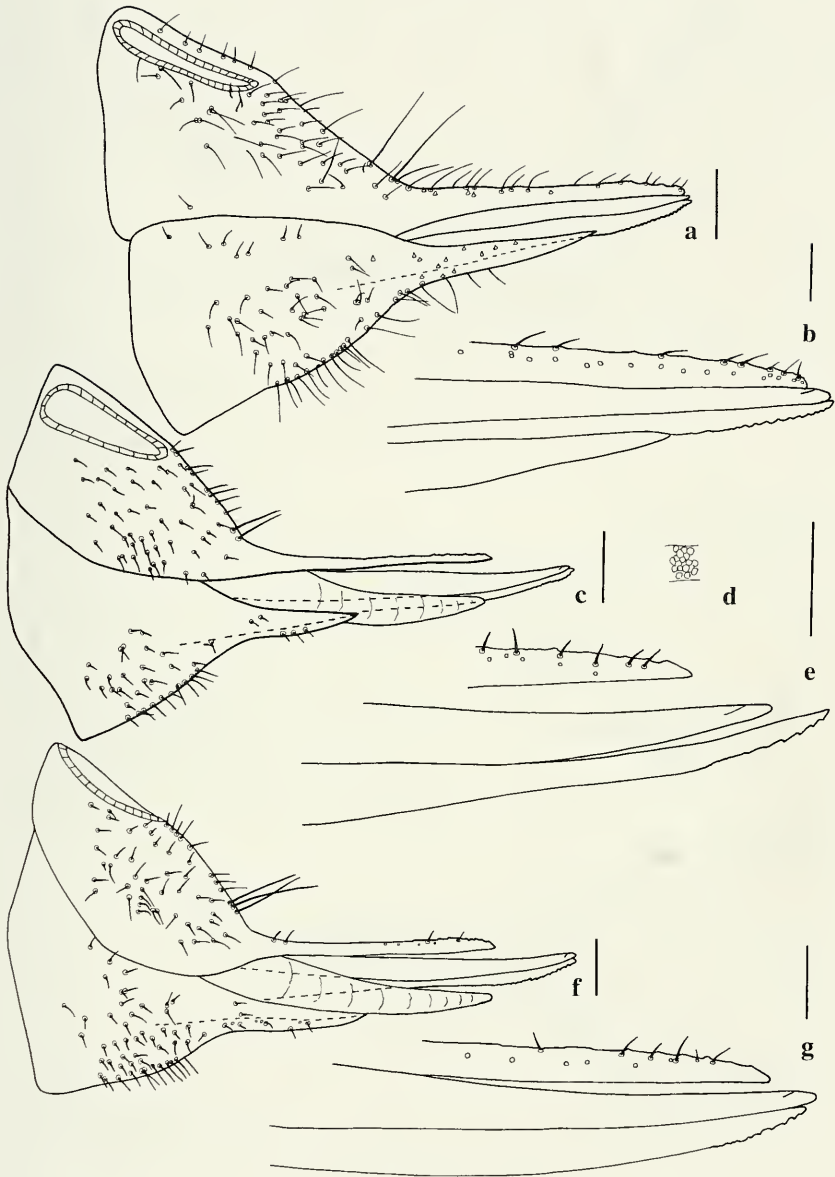


FIG. 35

Calinda spp. a, c, f: female genitalia, in profile, scale lines = 0.1 mm; b, e, g: valvulae dorsalis and ventralis, scale lines = 0.05 mm; d: section of female circumanal ring. a, b: *C. pehuenche* sp. n.; c-e: *C. boldti* sp. n.; f, g: *C. salicifoliae* sp. n.

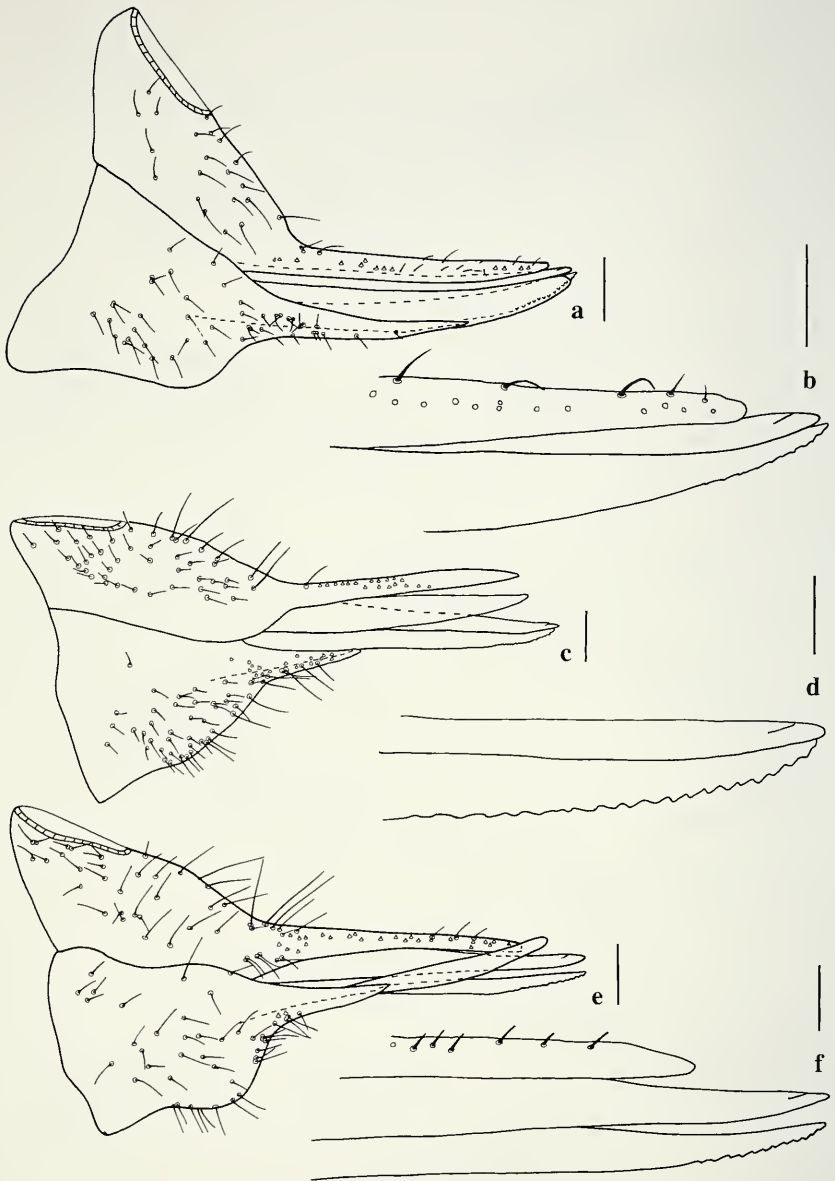


FIG. 36

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, f: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. longistylus* (Crawford); c, d: *C. osorii* sp. n.; e, f: *C. inca* sp. n.

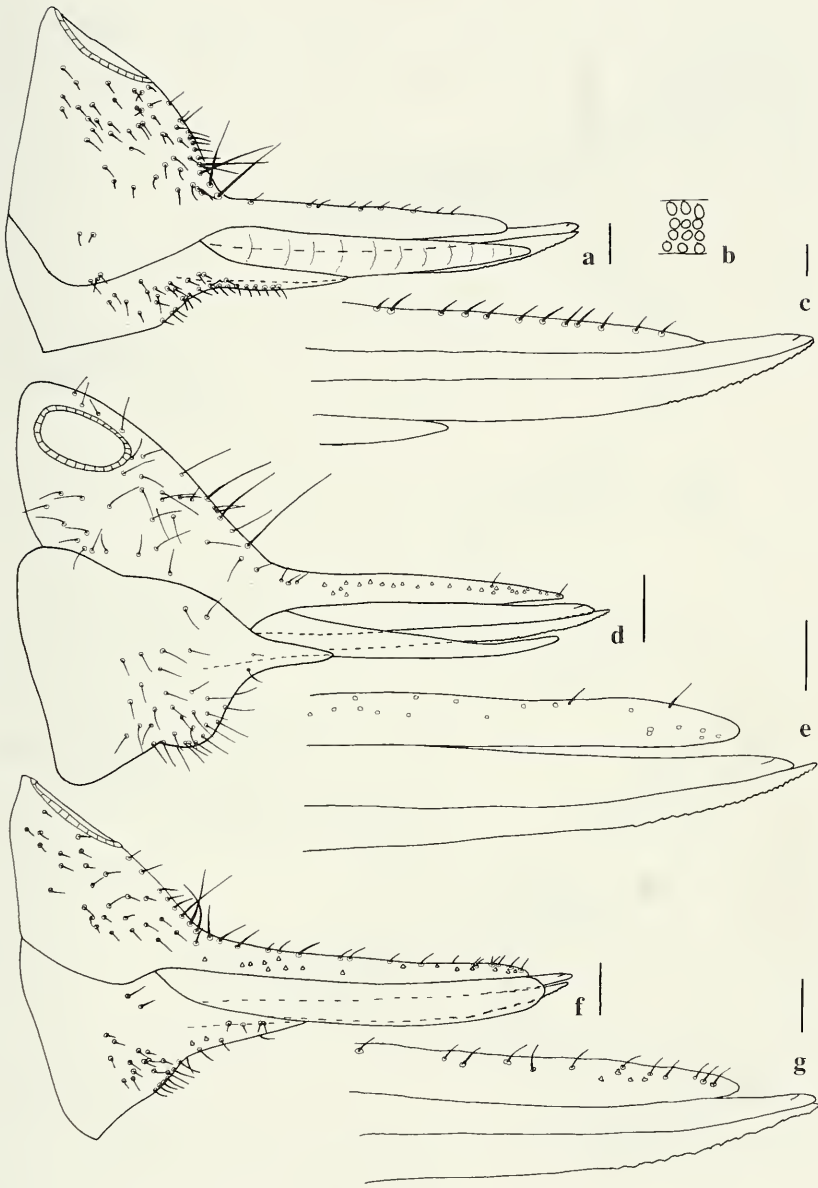


FIG. 37

Calinda spp. a, d, f: female genitalia, in profile, scale lines = 0.1 mm; c, e, g: valvulae dorsalis and ventralis, scale lines = 0.05 mm; b: section of female circumanal ring. a-c: *C. ambigua* sp. n.; d, e: *C. aguilari* (Tuthill); f, g: *C. testacea* Blanchard.

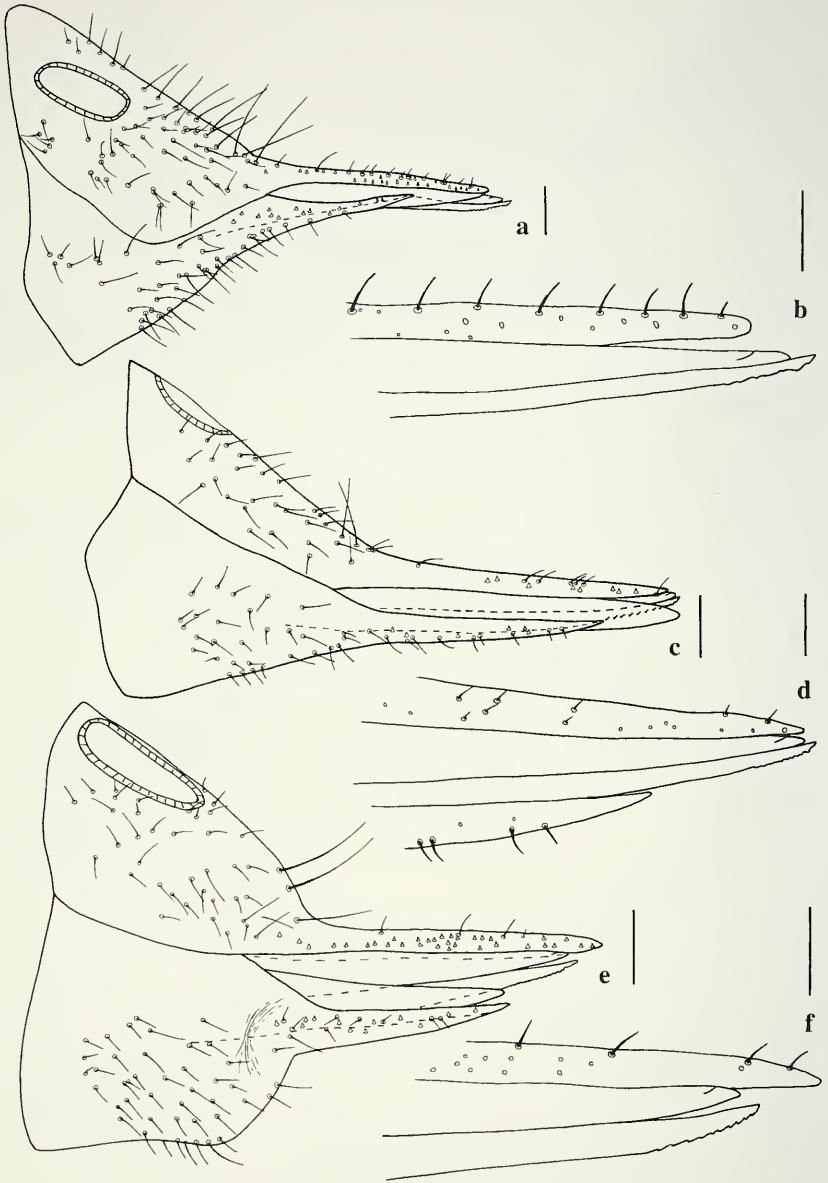


FIG. 38

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, f: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. simoni* (Tuthill); c, d: *C. longicaudata* sp. n.; e, f: *C. fumipennis* sp. n.

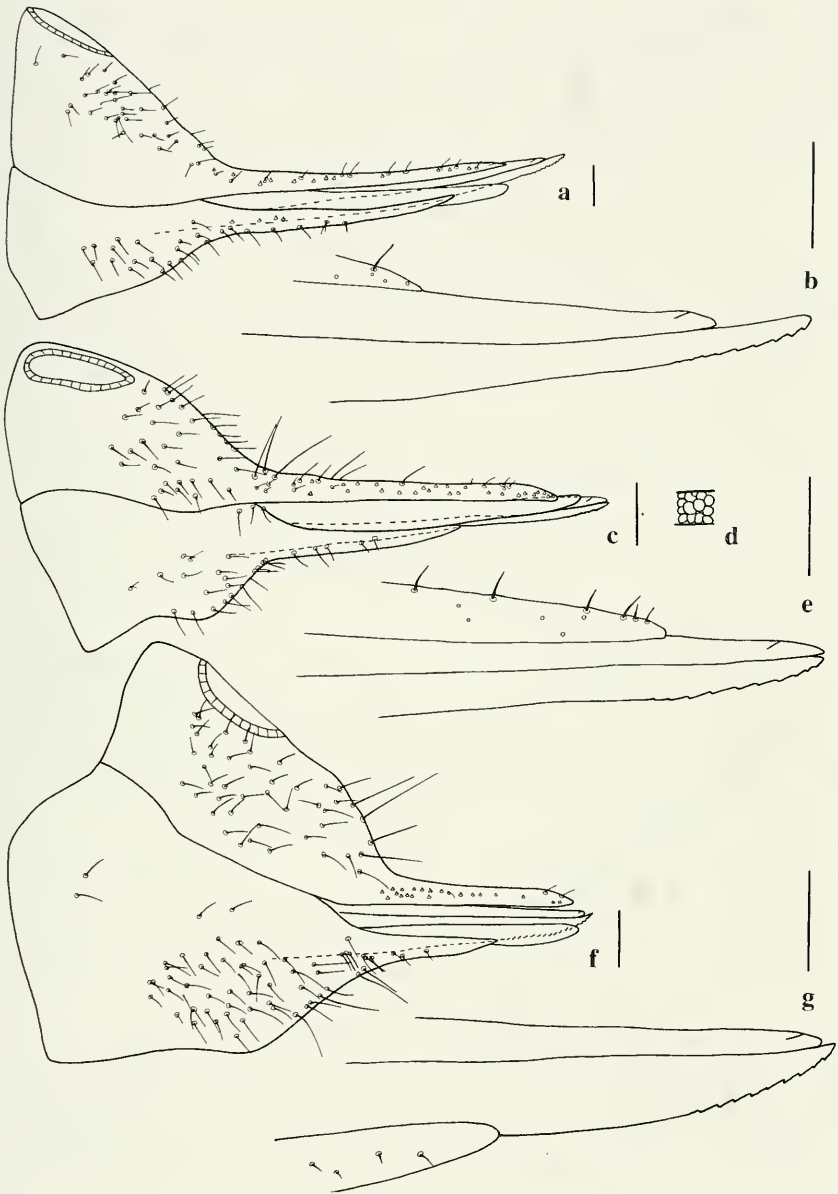


FIG. 39

Calinda spp. a, c, f: female genitalia, in profile, scale lines = 0.1 mm; b, e, g: valvulae dorsalis and ventralis, scale lines = 0.05 mm; d: section of female circumanal ring. a, b: *C. proximata* (Crawford); c, d, e: *C. hollisi* sp. n.; f, g: *C. collaris* (Crawford).

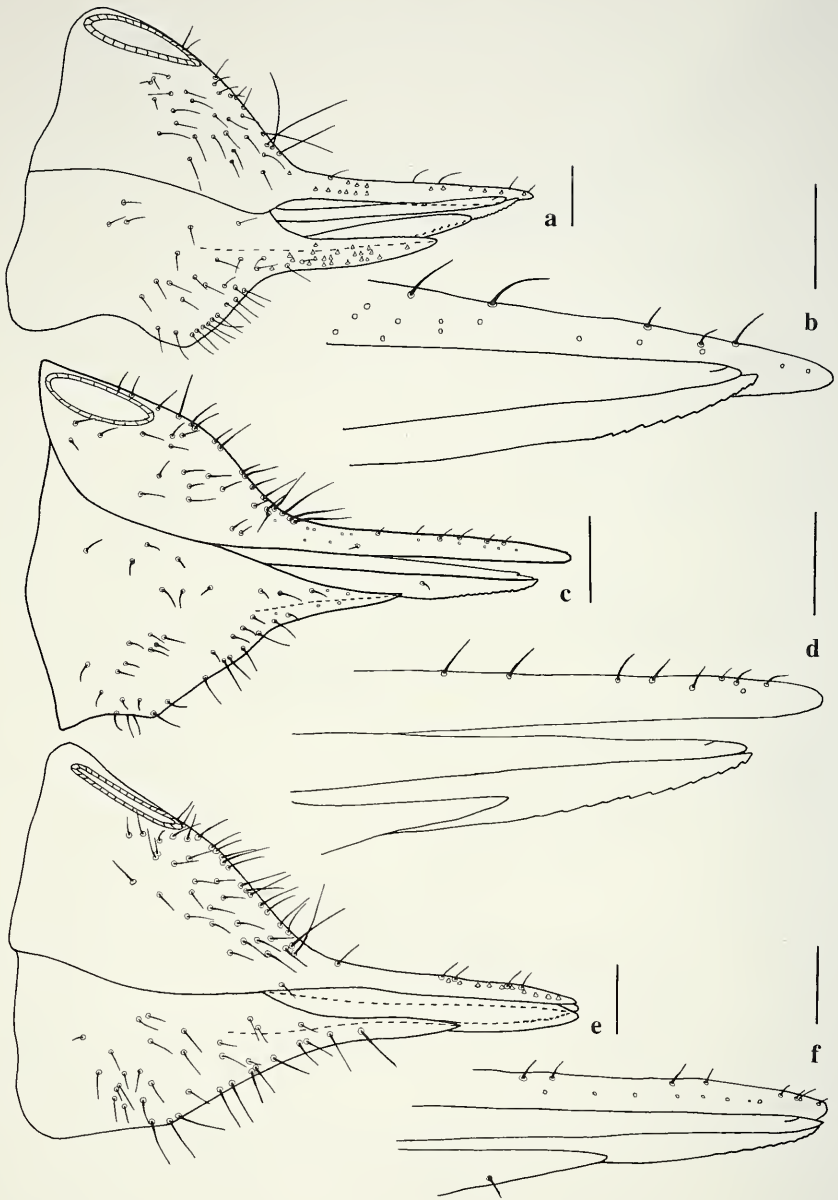


FIG. 40

Calinda spp. a, c, e: female genitalia, in profile, scale lines = 0.1 mm; b, d, f: valvulae dorsalis and ventralis, scale lines = 0.05 mm. a, b: *C. graciliforceps* sp. n.; c, d: *C. branisai* sp. n.; e, f: *C. plaumanni* sp. n.

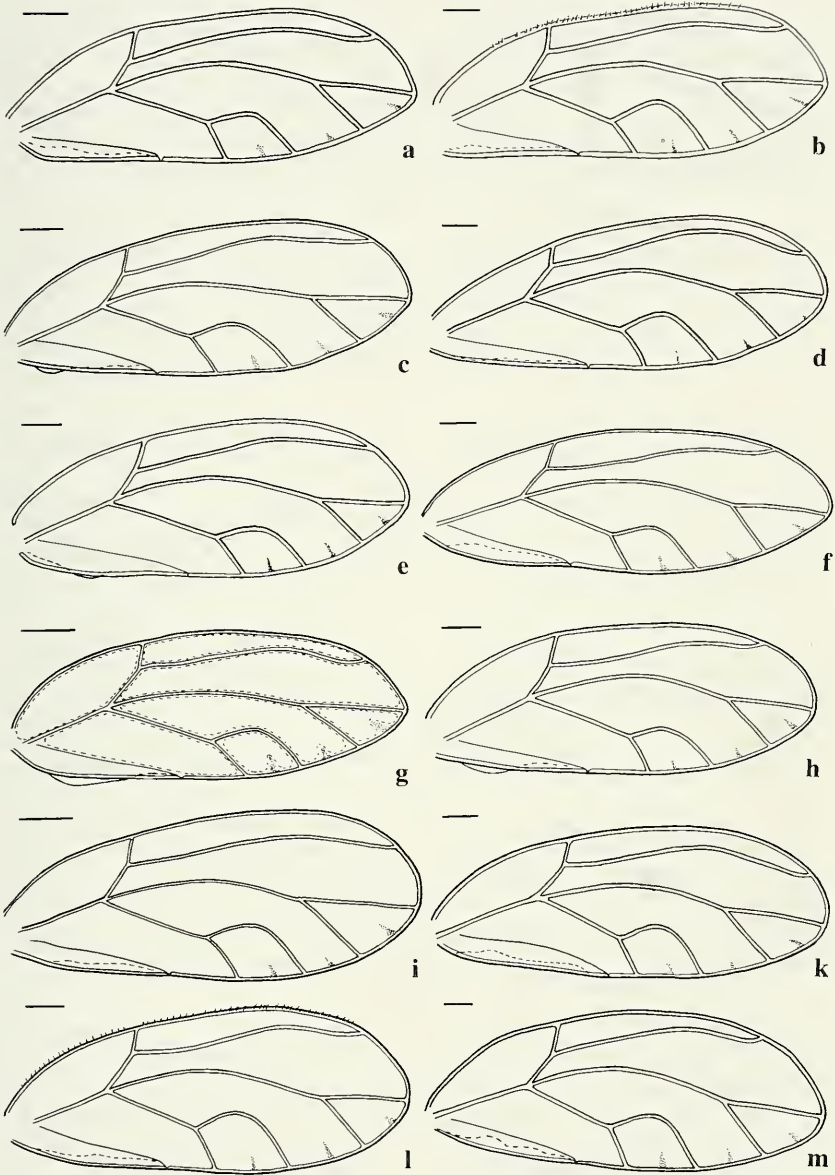


FIG. 41

Calinda spp., forewing. a: *C. broomfieldi* sp. n.; b: *C. magniforceps* (Tuthill); c: *C. peruana* (Tuthill); d: *C. osorii* sp. n.; e: *C. salicifoliae* sp. n.; f: *C. baccharidis* (Tuthill); g: *C. velardei* (Tuthill); h: *C. proximata* (Crawford); i: *C. tuthilli* sp. n.; k: *C. jibara* sp. n.; l: *C. albonigra* sp. n.; m: *C. penai* sp. n.; scale lines = 0.3 mm.

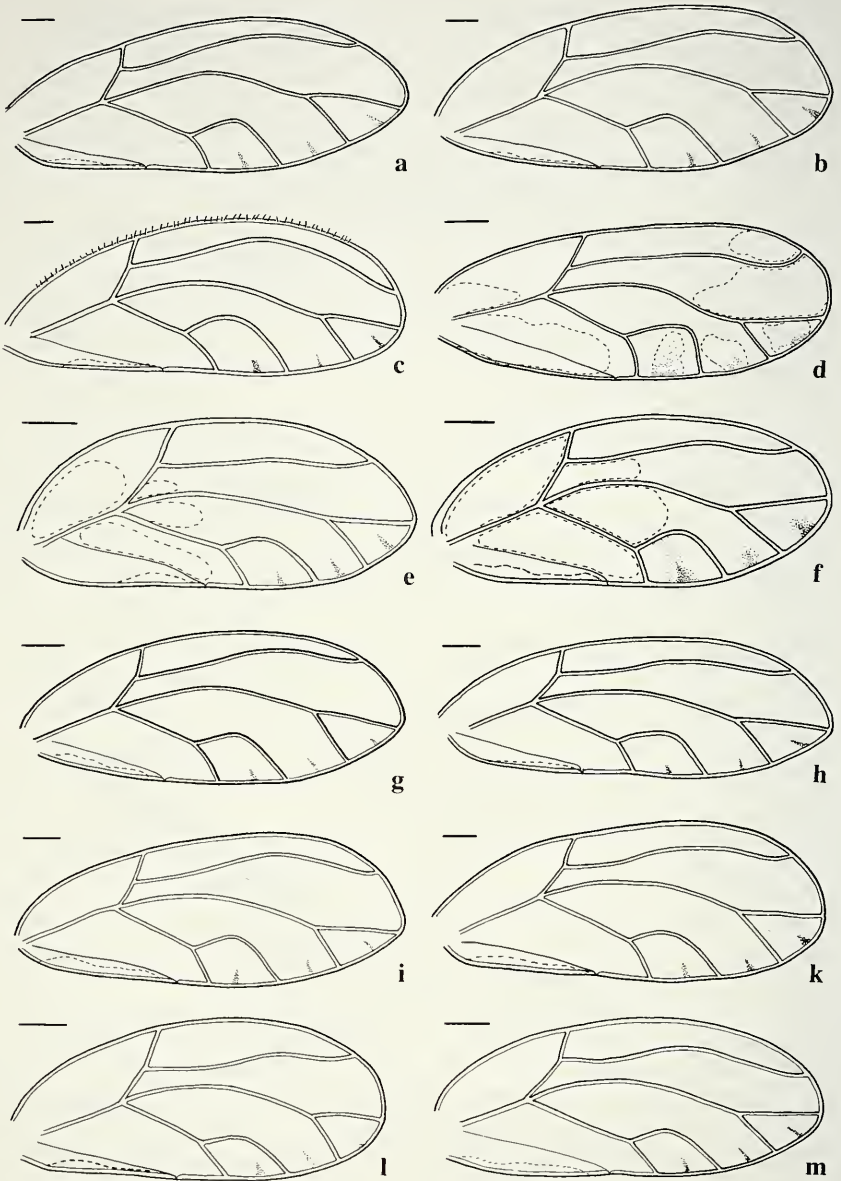


FIG. 42

Calinda spp., forewing. a: *C. gibbosa* (Tuthill) from Peru; b: *C. gibbosa* (Tuthill) from Colombia; c: *C. spatulata* sp. n.; d: *C. huggerti* sp. n.; e, f: *C. peterseni* sp. n.; g: *C. aguilari* (Tuthill); h: *C. inca* sp. n.; i: *C. parviceps* (Tuthill); k: *C. hodkinsoni* sp. n.; l: *C. chionophili* sp. n.; m: *C. patagonica* sp. n.; scale lines = 0.3 mm.

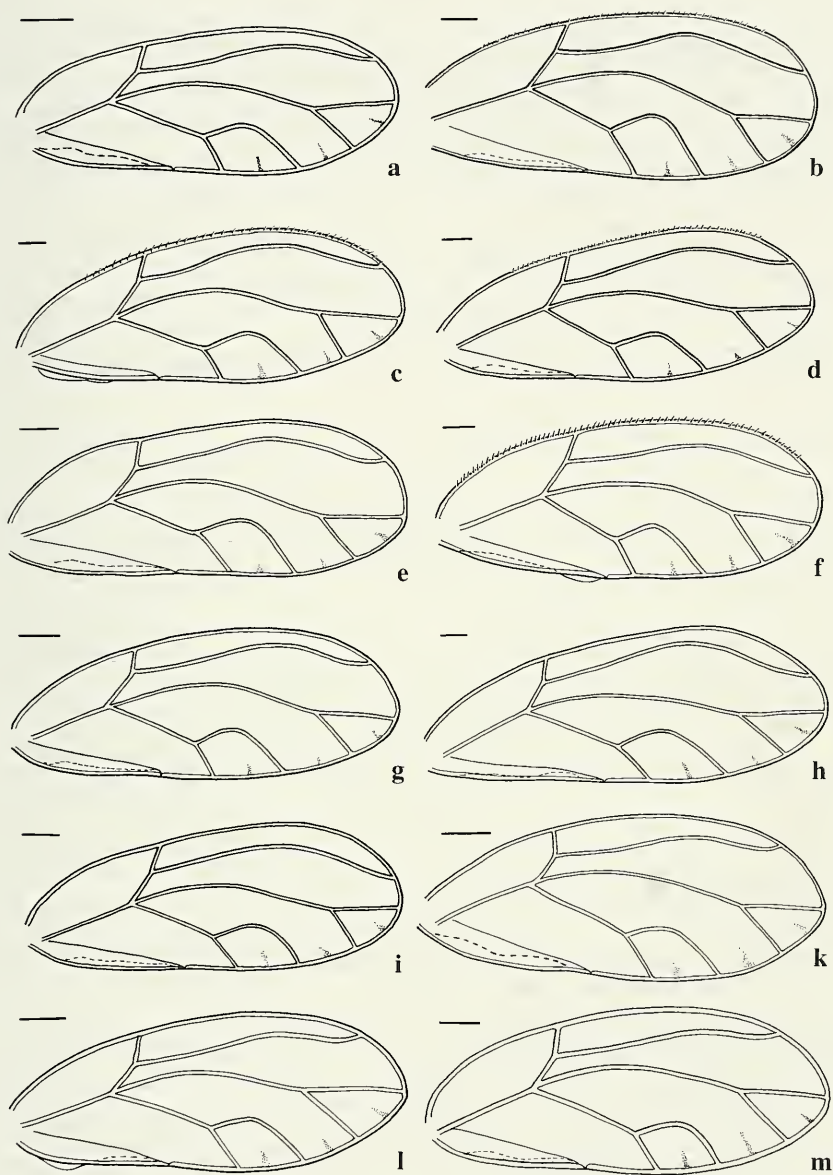


FIG. 43

Calinda spp., forewing. a: *C. reversyi* sp. n.; b: *C. yungas* sp. n.; c: *C. microcephala* sp. n.; d: *C. otavalo* sp. n.; e: *C. brevicauda* sp. n.; f: *C. panamensis* (Brown & Hodkinson); g: *C. trinervis* sp. n.; h: *C. longicollis* sp. n.; i: *C. falciforceps* sp. n.; k: *C. araucana* sp. n.; l: *C. ambigua* sp. n.; m: *C. boldti* sp. n.; scale lines = 0.3 mm.

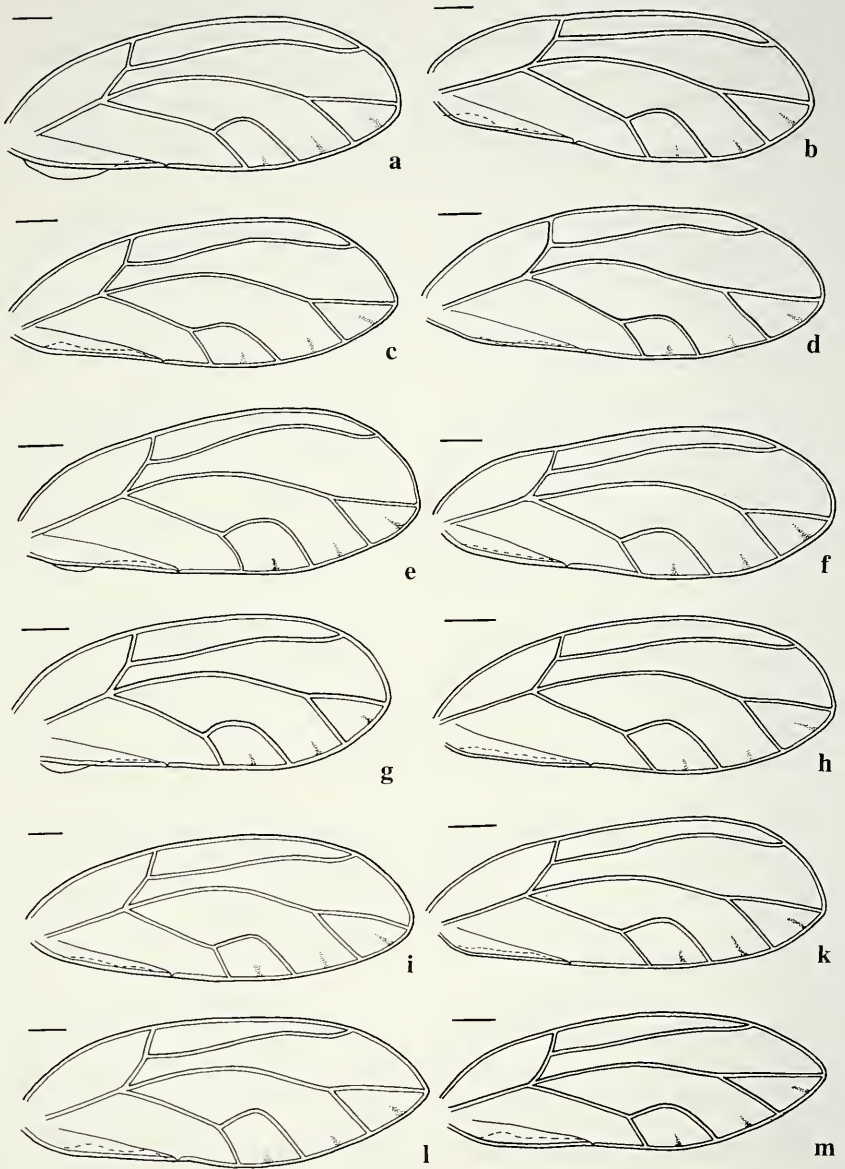


FIG. 44

Calinda spp., forewing. a: *C. pehuenche* sp. n.; b: *C. mendocina* (Kieffer & Jörgensen); c: *C. hollisi* sp. n.; d: *C. antucana* sp. n.; e: *C. testacea* Blanchard; f: *C. graciliforceps* sp. n.; g: *C. longicaudata* sp. n.; h: *C. plaumanni* sp. n.; i: *C. collaris* (Crawford); k: *C. branisai* sp. n.; l: *C. longistylus* (Crawford); m: *C. fumipennis* sp. n. Scale lines = 0.3 mm.

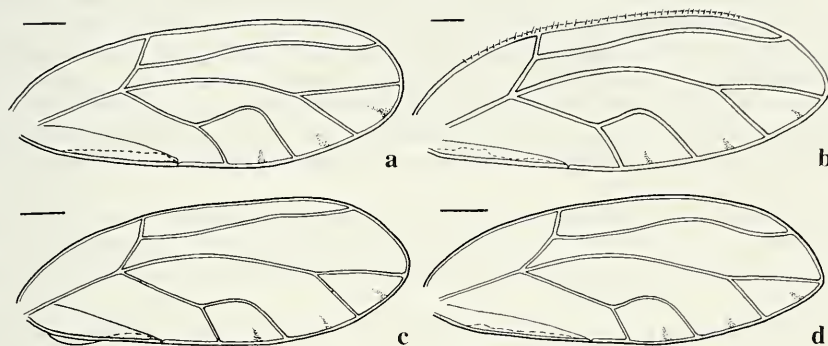


FIG. 45

Calinda spp., forewing. a: *C. gladiformis* sp. n.; b: *C. simoni* (Tuthill); c: *C. beingoleai* (Tuthill); d: *C. muiscas* sp. n.; scale lines = 0.3 mm.

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APPENDIX 1

Variables (measurements in mm) used in the multivariate analyses of males.

Species	HW	WL	WW	a	b	c	d	MP	PL	AEL
<i>C. ambigua</i>	49.0	247.0	82.0	47.0	37.0	37.0	24.0	26.0	31.0	28.0
<i>C. ambigua</i>	66.0	315.0	119.0	60.0	46.0	49.0	37.0	37.0	43.0	40.0
<i>C. ambigua</i>	59.0	308.0	119.0	66.0	45.0	54.0	33.0	34.0	40.0	39.0
<i>C. ambigua</i>	57.0	297.0	110.0	68.0	44.0	48.0	35.0	39.0	40.0	41.0
<i>C. ambigua</i>	56.0	318.0	122.0	70.0	49.0	52.0	31.0	37.0	41.0	41.0
<i>C. ambigua</i>	58.0	305.0	118.0	67.0	50.0	53.0	28.0	38.0	39.0	41.0
<i>C. ambigua</i>	63.0	325.0	131.0	64.0	45.0	56.0	33.0	34.0	42.0	41.0
<i>C. ambigua</i>	46.0	246.0	92.0	48.0	21.0	43.0	26.0	27.0	32.0	29.0
<i>C. ambigua</i>	51.0	252.0	95.0	56.0	39.0	44.0	25.0	28.0	31.0	29.0
<i>C. ambigua</i>	52.0	252.0	99.0	56.0	41.0	42.0	25.0	29.0	32.0	28.0
<i>C. ambigua</i>	54.0	240.0	95.0	51.0	35.0	42.0	25.0	26.0	32.0	29.0
<i>C. ambigua</i>	51.0	263.0	103.0	65.0	45.0	45.0	29.0	30.0	31.0	28.0
<i>C. ambigua</i>	54.0	306.0	110.0	84.0	50.0	51.0	36.0	30.0	29.0	32.0
<i>C. ambigua</i>	59.0	328.0	125.5	69.0	50.0	56.0	38.0	38.0	40.0	42.0
<i>C. ambigua</i>	60.0	319.0	119.0	68.0	45.0	49.0	35.0	37.0	45.0	45.0
<i>C. ambigua</i>	59.0	301.0	113.0	67.0	49.0	55.0	31.0	37.0	40.0	39.0
<i>C. ambigua</i>	55.0	308.0	112.0	65.0	44.0	52.0	29.0	40.0	41.0	42.0
<i>C. ambigua</i>	58.0	255.0	98.0	54.0	37.0	43.0	28.0	31.0	39.0	41.0
<i>C. antucana</i>	59.0	307.0	119.0	84.0	53.0	50.0	32.0	35.0	42.0	37.0
<i>C. antucana</i>	62.0	313.0	118.0	72.0	47.0	51.0	34.0	39.0	42.0	39.0
<i>C. antucana</i>	60.0	291.0	105.0	69.0	49.0	46.0	27.0	39.0	41.0	40.0
<i>C. araucana</i>	56.0	273.0	103.0	51.0	40.0	50.0	31.0	32.0	37.0	34.0
<i>C. araucana</i>	55.0	270.0	103.0	52.0	37.0	45.0	25.0	27.0	36.0	36.0
<i>C. araucana</i>	53.0	272.0	106.0	52.0	40.0	45.0	30.0	28.0	36.0	36.0
<i>C. araucana</i>	52.0	241.0	87.0	30.0	28.0	40.0	21.0	27.0	34.0	31.0
<i>C. araucana</i>	55.0	264.0	102.0	55.0	40.0	46.0	26.0	30.0	36.0	36.0
<i>C. araucana</i>	53.0	251.0	94.0	50.0	37.0	41.0	30.0	28.0	35.0	33.8
<i>C. araucana</i>	52.0	269.0	101.0	60.0	43.0	50.0	27.0	32.0	35.0	33.0
<i>C. araucana</i>	51.0	246.0	89.0	47.0	34.0	43.0	24.0	27.0	34.0	35.0
<i>C. araucana</i>	48.0	228.0	88.0	40.0	36.0	38.0	22.0	27.0	33.0	31.0
<i>C. araucana</i>	52.0	251.0	96.0	49.0	37.0	46.0	31.0	37.0	30.0	33.0
<i>C. araucana</i>	53.0	253.0	100.0	47.0	37.0	43.0	25.0	35.0	38.0	35.0
<i>C. araucana</i>	52.0	240.0	83.0	48.0	36.0	42.0	22.0	28.0	36.0	36.0
<i>C. araucana</i>	56.0	246.0	94.0	45.0	41.0	38.0	26.0	27.0	36.0	32.0
<i>C. araucana</i>	53.0	254.0	92.0	55.0	41.0	41.0	23.0	34.0	30.0	34.0
<i>C. araucana</i>	54.0	296.0	100.0	53.0	35.0	47.0	28.0	30.0	35.0	37.0
<i>C. boldti</i>	61.0	293.0	113.0	55.0	42.0	45.0	29.0	30.0	37.0	36.0
<i>C. boldti</i>	56.0	297.0	125.0	65.0	43.0	53.0	31.0	31.0	40.0	39.0
<i>C. boldti</i>	63.0	332.0	130.0	68.0	52.0	59.0	39.0	35.0	41.0	40.0
<i>C. boldti</i>	65.0	335.0	135.0	70.0	49.0	55.0	38.0	35.0	40.0	30.0

<i>C. mendocina</i>	65.0	318.0	121.0	58.0	48.0	52.0	36.0	35.0	37.0	31.0
<i>C. mendocina</i>	58.0	298.0	110.0	66.0	43.0	47.0	33.0	32.0	32.0	33.0
<i>C. mendocina</i>	56.0	303.0	104.0	65.0	43.0	56.0	27.0	34.0	31.0	31.0
<i>C. mendocina</i>	57.0	321.0	120.0	71.0	47.0	51.0	37.0	34.0	34.0	35.0
<i>C. pehuenche</i>	57.0	306.0	117.0	71.0	46.0	49.0	36.0	34.0	37.0	32.0
<i>C. pehuenche</i>	58.0	313.0	121.0	70.0	43.0	51.0	40.0	35.0	37.0	32.0
<i>C. pehuenche</i>	58.0	298.0	107.0	69.0	45.0	42.0	34.0	36.0	34.0	30.0
<i>C. pehuenche</i>	61.0	326.0	111.0	76.0	49.0	51.0	38.0	37.0	34.0	30.0
<i>C. pehuenche</i>	59.0	308.0	105.0	73.0	49.0	46.0	33.0	34.0	34.0	32.0
<i>C. pehuenche</i>	63.0	327.0	108.0	81.0	46.0	50.0	42.0	40.0	34.0	31.0
<i>C. pehuenche</i>	61.0	312.0	117.0	71.0	47.0	50.0	32.0	38.0	34.0	32.0
<i>C. pehuenche</i>	61.0	316.0	107.0	74.0	45.0	51.0	33.0	35.0	35.0	30.0
<i>C. pehuenche</i>	60.0	304.0	106.0	76.0	50.0	49.0	33.0	37.0	33.0	29.0
<i>C. pehuenche</i>	61.0	299.0	112.0	72.0	47.0	45.0	33.0	43.0	34.0	31.0
<i>C. pehuenche</i>	62.0	309.0	112.0	75.0	48.0	51.0	36.0	43.0	35.0	31.0
<i>C. pehuenche</i>	62.0	301.0	107.0	74.0	43.0	48.0	38.0	37.0	34.0	30.0
<i>C. testacea</i>	54.0	307.0	121.0	70.0	54.0	53.0	33.0	47.0	34.0	25.0
<i>C. testacea</i>	54.0	284.0	108.0	60.0	44.0	50.0	30.0	29.0	32.0	29.0
<i>C. testacea</i>	57.0	317.0	121.0	68.0	47.0	57.0	34.0	31.0	35.0	30.0
<i>C. testacea</i>	53.0	304.0	122.0	67.0	49.0	57.0	33.0	30.0	34.0	30.0
<i>C. testacea</i>	53.0	279.0	104.0	61.0	42.0	52.0	30.0	29.0	33.0	24.0
<i>C. testacea</i>	53.0	281.0	102.0	56.0	41.0	53.0	32.0	29.0	33.0	29.0
<i>C. testacea</i>	51.0	273.0	98.0	53.0	40.0	46.0	29.0	31.0	31.0	28.0
<i>C. testacea</i>	57.0	302.0	118.0	68.0	45.0	55.0	33.0	32.0	34.0	30.0
<i>C. testacea</i>	52.0	288.0	95.0	66.0	44.0	50.0	23.0	29.0	32.0	26.0
<i>C. testacea</i>	52.0	279.0	103.0	61.0	45.0	47.0	26.0	28.0	33.0	30.0
<i>C. testacea</i>	56.0	298.0	123.0	69.0	45.0	53.0	34.0	32.0	34.0	28.0
<i>C. testacea</i>	52.0	257.0	96.0	42.0	38.0	47.0	26.0	30.0	32.0	28.0
<i>C. testacea</i>	55.0	285.0	114.0	62.0	43.0	51.0	32.0	30.0	35.0	29.0
<i>C. testacea</i>	47.0	256.0	94.0	53.0	43.0	47.0	27.0	29.0	31.0	29.0
<i>C. testacea</i>	56.0	285.0	112.0	63.0	44.0	53.0	30.0	34.0	34.0	29.0

APPENDIX 2

Variables (measurements in mm) used in the multivariate analyses of females.

Species	HW	L3	AL	WL	WW	a	b	c	d	TL	FP	FSP
<i>C. ambigua</i>	69.0	21.0	90.0	294.0	105.0	64.0	47.0	53.0	33.0	61.0	109.0	62.0
<i>C. ambigua</i>	63.0	21.0	90.0	292.0	114.0	73.0	52.0	49.0	33.0	60.0	106.0	72.0
<i>C. ambigua</i>	62.0	22.0	101.4	349.0	137.0	56.0	53.0	60.0	36.0	67.0	122.0	92.0
<i>C. ambigua</i>	54.0	21.0	66.2	283.0	114.0	61.0	45.0	46.0	31.0	56.0	85.0	60.0
<i>C. ambigua</i>	66.0	24.0	115.0	364.0	148.0	81.0	55.0	72.0	40.0	65.0	129.0	81.0
<i>C. ambigua</i>	55.0	20.0	72.0	284.0	114.0	63.0	46.0	49.0	33.0	50.0	94.0	64.0
<i>C. ambigua</i>	55.0	20.0	73.8	289.0	116.0	62.0	44.0	52.0	39.0	55.0	93.0	63.0
<i>C. ambigua</i>	65.0	21.0	97.6	339.0	139.0	69.0	51.0	58.0	37.0	64.0	118.0	74.0
<i>C. ambigua</i>	62.0	24.0	98.5	348.0	138.0	78.0	58.0	65.0	39.0	61.0	119.0	87.0
<i>C. ambigua</i>	56.0	19.9	107.1	354.0	136.0	87.0	55.0	68.0	38.0	64.0	128.0	82.0
<i>C. ambigua</i>	59.0	20.0	98.0	341.0	130.0	80.0	56.0	61.0	34.0	58.0	118.0	83.0
<i>C. ambigua</i>	63.0	20.0	96.0	341.0	132.4	76.0	55.0	59.0	37.0	63.0	127.0	92.0
<i>C. ambigua</i>	64.0	19.0	103.0	372.0	129.0	91.0	60.0	66.0	39.0	67.0	123.0	91.0
<i>C. ambigua</i>	61.0	19.1	95.7	332.0	126.0	61.0	45.0	58.0	34.0	62.0	116.0	74.0
<i>C. antucana</i>	63.0	31.0	132.5	335.0	137.0	85.0	59.0	56.0	34.0	73.0	111.0	89.0
<i>C. antucana</i>	59.0	30.0	132.5	323.0	131.0	83.0	57.0	53.0	39.0	73.0	112.0	81.0
<i>C. antucana</i>	63.0	30.0	144.0	328.0	129.0	77.0	56.0	53.0	39.0	76.0	118.0	86.0
<i>C. antucana</i>	60.0	26.0	121.0	281.0	113.0	59.0	43.0	45.0	29.0	69.0	105.0	77.0

<i>C. araucana</i>	56.0	26.0	108.0	299.0	109.0	66.0	51.0	53.0	31.0	62.0	108.0	63.0
<i>C. araucana</i>	52.0	22.0	96.1	267.0	101.0	53.0	43.0	51.0	29.0	57.0	97.0	55.0
<i>C. araucana</i>	56.0	21.0	98.0	282.0	107.0	56.0	43.0	51.0	29.0	57.0	99.0	60.0
<i>C. araucana</i>	57.0	23.0	98.6	277.0	107.0	54.0	42.0	49.0	32.0	55.0	102.0	66.0
<i>C. araucana</i>	54.0	23.0	98.1	274.0	102.0	53.0	43.0	50.0	33.0	57.0	101.0	53.0
<i>C. araucana</i>	56.0	22.0	96.0	269.0	112.0	60.0	45.0	54.0	28.0	56.0	101.0	56.0
<i>C. araucana</i>	53.0	21.0	93.5	251.0	97.0	47.0	36.0	47.0	23.0	53.0	92.0	56.0
<i>C. araucana</i>	49.0	21.0	97.0	258.0	97.0	53.0	39.0	45.0	26.0	54.0	97.0	52.0
<i>C. araucana</i>	58.0	25.0	97.6	307.0	118.0	68.0	42.0	54.0	35.0	62.0	100.0	61.0
<i>C. araucana</i>	53.0	22.0	94.0	263.0	100.0	46.0	38.0	50.0	28.0	53.0	93.0	63.0
<i>C. araucana</i>	53.0	21.0	96.1	258.0	103.0	53.0	43.0	44.0	28.0	52.0	97.0	65.0
<i>C. araucana</i>	54.0	22.0	94.0	258.0	105.0	56.0	40.0	51.0	27.0	57.0	93.0	55.0
<i>C. araucana</i>	56.0	22.5	98.6	280.0	113.0	56.0	44.0	48.0	30.0	60.0	102.0	71.0
<i>C. araucana</i>	67.0	22.0	106.2	361.0	138.0	78.0	59.0	68.0	42.0	73.0	117.0	71.0
<i>C. boldti</i>	55.0	15.0	72.0	252.0	94.0	54.0	39.0	42.0	23.0	47.0	73.0	45.0
<i>C. boldti</i>	56.0	16.5	72.0	285.0	112.0	69.0	45.0	47.0	27.0	52.0	78.0	57.0
<i>C. boldti</i>	58.0	18.0	72.0	293.0	113.0	61.0	44.0	48.0	31.0	54.0	88.0	55.0
<i>C. boldti</i>	61.0	16.5	72.0	296.0	112.0	67.0	48.0	48.0	29.0	50.0	85.0	62.0
<i>C. mendocina</i>	58.0	23.0	101.0	334.0	115.0	80.0	53.0	53.0	33.0	58.0	82.0	78.0
<i>C. mendocina</i>	59.0	24.0	101.0	328.0	122.0	77.0	49.0	54.0	41.0	62.0	84.0	82.0
<i>C. mendocina</i>	56.0	19.0	97.0	318.0	130.0	77.0	47.0	47.0	45.0	50.0	76.0	71.0
<i>C. pehuenche</i>	65.0	21.0	105.8	330.0	123.0	74.0	51.0	52.0	37.0	61.0	85.0	74.0
<i>C. pehuenche</i>	63.0	15.0	103.0	341.0	121.0	81.0	48.0	60.0	36.0	54.0	93.0	77.0
<i>C. pehuenche</i>	63.0	19.0	104.0	346.0	124.0	75.0	49.0	57.0	38.0	62.0	93.0	70.0
<i>C. pehuenche</i>	63.0	18.0	102.0	312.0	111.0	71.0	45.0	54.0	37.0	54.0	83.0	66.0
<i>C. pehuenche</i>	63.0	20.0	100.2	330.0	126.0	79.0	49.0	49.0	42.0	54.0	88.0	75.0
<i>C. pehuenche</i>	62.0	18.0	111.0	333.0	123.0	80.0	51.0	55.0	42.0	62.0	86.0	70.0
<i>C. pehuenche</i>	63.0	15.0	99.0	329.0	123.0	85.0	48.0	59.0	36.0	56.0	88.0	75.0
<i>C. pehuenche</i>	64.0	21.0	114.0	326.0	118.0	79.0	52.0	54.0	36.0	63.0	87.0	79.0
<i>C. pehuenche</i>	63.0	19.0	103.0	335.0	124.0	70.0	49.0	55.0	41.0	60.0	90.0	80.0
<i>C. pehuenche</i>	62.0	19.0	102.6	344.0	130.0	83.0	51.0	57.0	41.0	57.0	92.0	75.0
<i>C. testacea</i>	54.0	23.0	84.0	316.0	129.0	73.0	48.0	55.0	38.0	63.0	119.0	53.0
<i>C. testacea</i>	55.0	24.0	99.0	354.0	128.0	65.0	45.0	60.0	39.0	63.0	117.0	60.0
<i>C. testacea</i>	52.0	24.0	98.1	303.0	116.0	64.0	46.0	54.0	35.0	60.0	106.0	50.0
<i>C. testacea</i>	57.0	24.0	108.6	317.0	119.0	58.0	43.0	60.0	31.0	62.0	108.0	55.0
<i>C. testacea</i>	59.0	25.0	82.4	363.0	133.0	73.0	55.0	67.0	35.0	69.4	122.0	60.0
<i>C. testacea</i>	54.0	24.0	81.0	324.0	118.0	72.0	52.0	63.0	36.0	61.0	118.0	47.0
<i>C. testacea</i>	55.0	20.0	100.0	316.0	111.0	61.0	47.0	57.0	32.0	58.0	99.0	56.0
<i>C. testacea</i>	54.0	22.2	78.9	315.0	111.0	75.0	50.0	55.0	32.0	61.0	103.0	52.0
<i>C. testacea</i>	56.0	24.0	102.0	304.0	118.0	63.0	48.0	59.0	32.0	62.0	96.0	46.0
<i>C. testacea</i>	53.0	23.0	84.1	315.0	115.0	72.0	50.0	50.0	32.0	60.0	98.0	48.0
<i>C. testacea</i>	57.0	23.0	103.3	321.0	121.0	61.0	43.0	54.0	30.0	60.0	99.0	47.0
<i>C. testacea</i>	50.0	20.0	113.8	251.0	92.0	55.0	39.0	48.0	27.0	50.0	84.0	45.0